

A. 16

NUCLEAR REGULATORY COMMISSION

---

IN THE MATTER OF:

THREE MILE ISLAND  
SPECIAL INTERVIEWS

DEPOSITION OF ROBERT C. ARNOLD

Place - Middletown, Pennsylvania

Date - Monday, September 24, 1979

Pages 1 - 143

---

POOR ORIGINAL

Telephone:  
(202) 347-3700

ACE - FEDERAL REPORTERS, INC.

*Official Reporters*

444 North Capitol Street  
Washington, D.C. 20001

NATIONWIDE COVERAGE - DAILY

8001160686

T

1           A           I guess I would not have expected it to be off-site  
2 monitoring as much as assistance in management, administration  
3 of the data collection, integration of the data, analysis,  
4 interpretation of it, and providing additional analytical  
5 capabilities here on-site to augment the analytical  
6 capabilities we had.

7           Q           Not so much taking the readings or supplying the  
8 instruments to be put out there, but analyzing the data came  
9 in from them?

10          A           Yes, although here again that was more of a  
11 supportive role, because clearly the emergency plan envisioned  
12 that the emergency response organization would make the  
13 calculations on off-site doses and the implications of the  
14 releases.

15          We did have RMC greatly expand our off-site monitoring  
16 program quite quickly but that was in response, I think, to  
17 the conditions that existed and not as a result of the  
18 prior contractual basis for the support.

19          Q           Let me turn to another subject now. The declaration  
20 of commercial operation of a power plant, nuclear power plant.  
21 Who was the person who had the major responsibility for making  
22 the decision that Unit 1 was ready to be declared in commercial  
23 operation? Was that you at the time?

24          A           Yes. I think that it would be fair to say that I  
25 was, in effect, a last check-off for declaring it commercial.

1 It was understood the basis under which I would do that. I  
2 didn't make that decision in a vacuum, as it were, from a  
3 management sense, but the letter declaring it commercial was  
4 signed by myself and it was the result of my making the  
5 judgment that we had fulfilled the criteria we established for  
6 ourselves for declaring commercial operation.

7 Q When you say the criteria we had established for  
8 ourselves, were those criteria ever written down for Unit 1?

9 A Certainly not to the extent that they were documented  
10 in advance for Unit 2. I think the understanding that existed  
11 is that we would complete our start-up test program and  
12 demonstrate the ability of the unit to operate at its rated  
13 output before we declared it commercial.

14 Q When you say the start-up test program, are you  
15 referring to the test program required by the NRC or a test  
16 program in addition that was worked out by the company in  
17 addition to or parallel with whatever the NRC requires?

18 A Our start-up test program was more extensive than  
19 what one might term the minimum requirements of the NRC. We  
20 contained within our formal start-up test program those  
21 requirements that did exist from the NRC.

22 So it was really a company program broader based than the  
23 regulatory requirements but encompassing within it those  
24 requirements.

25 Q Who worked out or developed the criteria for

1 Unit 1 that you just referred to? Did you have a hand in  
2 that? Were those received in some way when you came into the  
3 job?

4 A I think that my perception of the requirements were  
5 based upon the practice within Metropolitan Edison that had  
6 existed prior to TMI Unit 1 completing its test program. My  
7 specific experience had been with the installation and startup  
8 of combustion turbine facilities in the previous nine years.

9 I think I had put into service some seven or eight units  
10 and kind of developed an understanding of the practice within  
11 the company for testing and operation of the units before we  
12 would feel they were ready to be turned over to the system  
13 dispatchers for them to control.

14 In going commercial in my mind, at that time it meant  
15 principally the turning over of the unit for its dispatching  
16 to the system operators.

17 Q When you said system operators, do you mean the  
18 operating company or are you talking about the power grid now?

19 A I'm talking about the power grid. I associated in  
20 my mind at that time the principal import of commercial  
21 operation, aside from what I recognized was a changing in  
22 the accounting treatment of it. The commitment to the  
23 interconnection operators -- what I call the system operators --  
24 of that unit being available for routine operation under  
25 their control.

1 Q And that commitment, I take it, is not a commitment  
2 that occurs at the earlier time when a plant is synchronized  
3 with the grid?

4 A That is very specifically not made available to  
5 them at that time.

6 Q Was it your understanding that the criteria had been  
7 developed and written down before Unit 2 went commercial were  
8 similar to those that had been applied before?

9 A I think they included what had been applied before.

10 Q Were there any written criteria that came about  
11 when the formal development was written out?

12 A I think there developed a formalization of criteria  
13 which previously may have been implicit in a declaration of  
14 commercial operation but it was not -- within my experience,  
15 at least -- that it was systematically reviewed.

16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
End LRW #11

POOR ORIGINAL

1 Q Let me show you what we have marked as Exhibit 13  
2 in these depositions. This contains five or six pages in the  
3 front of it that appear to be a set of criteria written out  
4 and signed by you and others in June of 1978.

5 Do you recall at whose instigation this project was under-  
6 taken, to actually formalize these criteria within GPU and  
7 develop a written guideline like this for taking the plant  
8 commercial?

9 A Yes, I am quite clear on my opinion as to the  
10 background of it.

11 Q Can you tell us about that?

12 A It goes back to the declaration of unit 1 for  
13 commercial operation. I guess an awareness at that time by  
14 Herman Dieckamp, who had been with the company perhaps a  
15 couple of years at that point -- I don't recollect --

16 Q This is late 1974?

17 A Yes. It was actually September 2. Closer to mid-  
18 1974 that unit 1 went commercial. I think as he reflected  
19 upon the way in which we declared a major investment such as  
20 TMI unit 1 for commercial service, that he believed a more  
21 formal systematic review of the status of the plant was  
22 appropriate. So we convened at that time, even though it was  
23 after the fact, a TMI unit 1 commercial review made up of  
24 equivalent cast of characters that were used for TMI 2, and  
25 had sometime in September or October a review of many of the

1 same items with regard to unit 1 that we had incorporated  
2 in the criteria set forth in the reference document.

3 When it got into the time frame of Homer City unit 3  
4 becoming commercial, it certainly appeared appropriate to hold  
5 a similar type review and I think that at that time we utilized  
6 perhaps an earlier draft of this, or at least some thoughts  
7 that we developed within my generation division as to how  
8 to formalize that process. And I had notified Jack Herbein  
9 and the TMI people that we wanted to do that type of formal  
10 review ahead of declaring TMI unit 2 commercial. And to make  
11 everybody within the system aware of what that process was  
12 supposed to involve to provide us greater assurance it would  
13 be done in a thorough manner, we developed this procedure  
14 which is referred to by you as a governing document for  
15 requiring and defining a precommercial review.

16 Q Why was it desirable to do this? In your own  
17 mind. Is this a management tool or does 't assure that all  
18 the things that have to get done will get done when you otherwise  
19 won't be assured of that?

20 What is it that this is supposed to do for you?

21 A I think it is clearly a management tool and it goes --  
22 what you referred to as another possibility -- I think it  
23 encompasses that.

24 I think it fundamentally grows out of a sense of what is  
25 the proper way to administer and manage company operations that

1 involve the degree of investment and criticalness to the  
2 company's well being as a new generating facility does.

3 It also has become clear over the last ten years that  
4 generating stations are more expensive; they are more complex;  
5 and the regulatory and administrative requirements are greater  
6 than they were in the '60s, for example.

7 So what this does is provide a horizon, so to speak, against  
8 which the project can be -- executing the project prior to  
9 its completion, knowing that that is the scope of activities  
10 against which the completeness of the project is going to be  
11 judged. It is not anything new in the sense of what the  
12 project organization and procedures address.

13 The ongoing project has a responsibility in a formalized  
14 way for addressing all of these issues. But it says to  
15 everyone: Before we say that investment is ready to be put  
16 into service, we will sit down and systematically look at the  
17 technical and administrative and personnel aspects that have  
18 been brought into place at that time and satisfy ourselves that  
19 it is prudent to proceed with commercialization.

20 Q Do you know who was the primary person who drafted  
21 these criteria? Was that Mr. Bachofer?

22 A My recollection is that Bachofer was the primary  
23 author of it. He undertook the drafting after some discussion  
24 with me and also, I am fairly certain, after we used an earlier  
25 draft, which, as I say, is kind of a reference document during



1 the Homer City 3 review.

2 Q So you had a lot of input into these criteria  
3 yourself, substantively?

4 A Yes, I did.

5 Q Are these substantially different in any way from  
6 the criteria that were applied in the unit 1 decision? Are  
7 there some significant criteria here that are added or any  
8 that weren't, that were subtracted, any that you applied to  
9 unit 1 that you didn't apply here?

10 A I think we included in these criteria a requirement  
11 for specifically addressing and judging adequate administrative  
12 and staffing issues which I certainly would have had to have  
13 been satisfied with regard to unit 1 were acceptable, but  
14 didn't specifically review with the explicitness that we did  
15 in this instance.

16 I think I would have to ascertain that all of these criteria  
17 were either in existence explicitly or implicitly or I would  
18 not have been agreeable to declaring unit 1 commercial.

19 Put the items other than completion of the test program  
20 were judged to be acceptable based upon other management  
21 systems that we had in place than one similar to this.

22 Q Let me ask you about 2.6.2 -- I am sorry. It is --  
23 yes, 2.6.2 in there. Can you tell me what that means? That  
24 paragraph?

25 A Yes.

1 Q Specifically, what test results are being referred  
2 to and what the term "PCOPL" refers to?

3 A PCOPL is proposed commercial operation power level.  
4 I believe it is defined in an earlier section.

5 Q Right.

6 A That is 2.1.1.

7 Q Who sets that? Is that a company-defined term?

8 A Yes. It was a terminology that we -- and  
9 probably more correctly, myself -- generated in the course of  
10 developing this procedure.

11 Q What does that mean? Is that projected or designed  
12 100 percent power level or something else?

13 A It could be something else. We recognized when we  
14 wrote this procedure that the circumstances at the time the  
15 plant -- let me start over again.

16 We may be at the point of wanting to declare the unit  
17 commercial at something below its designed or expected full  
18 power output.

19 There have been circumstances in the past, and likely one  
20 is to arise in the future, where it is prudent and desirable  
21 to declare the unit commercial at something less than its  
22 anticipated full power output. We did that for Homer City 3,  
23 for example.

24 So this was to recognize that that might well be an approp-  
25 riate development. 2.6.2 said that for whatever power level

1 we propose to make it commercial. We had to have completed  
2 appropriate test programs and meet appropriate Federal, state,  
3 and local regulatory requirements. In other words, we  
4 weren't to, in effect, declare it commercial when, for that  
5 power level, at least, it was not commercial in the fullest  
6 sense.

7 Q Why was the Homer 3 plant declared commercial at  
8 less than 100 percent power, or 100 percent projected full  
9 power?

10 A At the end of 1977, Homer City 3 had not yet completed  
11 its start up test program. It had operated for a significant  
12 amount of time at part load and it had shown the ability to  
13 operate reliably at part load.

14 Our feeling was it was only a matter of going through the  
15 remainder of the test program to demonstrate its ability to  
16 operate at rated power.

17 So I had no reluctance to declare it commercial at part load  
18 at the end of 1977. There was considerable interest on the  
19 part of the 50 percent owner -- non-GPU owner, New York State  
20 Electric and Gas -- to have it declared commercial in 1977.

21 GPU was indifferent to whether it was 1977 or 1978, as  
22 far as I knew, and we had no qualms about being consistent  
23 with New York State Electric and Gas.

24 Q So was Homer City 3 declared in commercial operation  
25 in the last couple of days of 1977?

1 A Yes.

2 MR. FRAMPTON: Let's break for lunch now. We will  
3 reconvene at 1:30.

XXX 4 (Whereupon, at 11:30 a.m., the hearing was recessed,  
end 12 5 to reconvene at 1:30 p.m., this same day.)

XXX 6 AFTERNOON SESSION

7 (1:55 p.m.)

8 MR. FRAMPTON: On the record.

9 BY MR. FRAMPTON:

10 Q I think, before we broke, we were discussing the  
11 question of when it was possible or known to declare a plant  
12 in commercial operation at less than the anticipated full-  
13 power level.

14 We were talking about Homer City 3. Do you recall at what  
15 percentage of the full-power level that was declared  
16 commercial? Approximately?

17 A I think we declared it commercial initially at 300  
18 megawatts. It is a 650 megawatt nominal reading. It may have  
19 been a little less than that. I am sure it wasn't below 200  
20 megawatts.

21 Q Do you recall how long it took thereafter to complete  
22 the testing procedure to get up to approximately full power?  
23 Was it a matter of days or weeks or months?

24 A It was a matter of weeks. As we go up in power,  
25 particularly with a coal plant, there is a lot of adjustment

1 of systems, alignment of control systems, that are necessary  
2 at various power levels that can't be done except with the  
3 plant on the line.

4 We didn't have the capability to do it, at least, except  
5 with the plant on line. My recollection is that we had its  
6 commercial rating as a 650 megawatt about the end of February.

7 We made some incremental steps in between there as we  
8 completed the testing at various levels.

9 Q In the case of TMI unit 2, was that a realistic  
10 possibility? To go into commercial operation at less than  
11 full power?

12 A Well, I think that absent some of the other concerns--  
13 namely the interface with the rate cases that we had in  
14 progress during 1978, it may well have been a possibility, but  
15 we weren't really considering doing that because of the --  
16 because of some of the concerns that had been expressed by  
17 the PUC; and we told them we would not place it in commercial  
18 operation until we fulfilled the items that were identified.

19 I think that the kind of thing that could have developed  
20 was say a regulatory limit for some reason that would perhaps  
21 limit us to 75 percent reactor power, as an example, if that  
22 had developed, I think we would have gone back to the PUC  
23 and said: Look, because of circumstances we think it only  
24 makes sense to go ahead and declare the unit commercial and  
25 we will operate at 75 percent power until we clear this power

1 level limitation.

2 Q So you, in essence, made a commitment to the  
3 Pennsylvania PUC to complete your full NRC test program or your  
4 test program up to full power before you declared commercial;  
5 is that right?

6 A Yes.

7 Q What were the concerns that they expressed that  
8 caused you to say that you would do this?

9 A Well, there had been, as part of our rate application,  
10 a request to include TMI unit 2 in rate base for the rate order.  
11 We agreed with them that TMI 2 should be in operation -- maybe  
12 that is putting it too strongly -- we at least recognized  
13 the advantage of not getting into a dispute over whether or  
14 not TMI 2 had to be in commercial operation within the  
15 test year period for the rate in order for the PUC to put TMI  
16 2 into their rate base.

17 Did that come across right?

18 Q Yes. Can you tell me about what the test year  
19 period was in the case of this proceeding?

20 A Calendar year 1978. So that in the course of those  
21 rate proceedings -- in at least the second quarter of 1978 --  
22 the hearing examiner, administrative law judge more properly,  
23 requested the parties to identify what they felt were the  
24 appropriate bases for placing a unit in commercial service.

25 I think there was also the same question either expressed

1 or implied as an item of interest to the PUC, itself, as well  
2 as the administrative law judge. So the basis for making the  
3 judgment that a facility should be into commercial service  
4 was a topic that received a lot of discussion between the  
5 various parties to that rate proceeding, and we identified  
6 to the PUC and the administrative law judge what we would  
7 suggest were the criteria which fulfillment of provided an  
8 adequate basis for declaring the unit commercial.

9 I presume you have the letters we wrote to the PUC in which  
10 we stated those.

11 Q As you understood it, what was the -- the test year  
12 doesn't have to be a calendar year; does it?

13 A It does not.

14 Q What determined the test year in this case? This  
15 was the test year for your rate proceeding; is that correct?

16 A Yes. More exactly, it may have been for only one  
17 of the two companies. There may have been a three-month  
18 difference in the timing of the two test years.

19 The Pennsylvania laws were modified, or new legislation  
20 was passed in 1977, as I recall, which provided for utilizing  
21 a forward-looking time period as the basis for the test year  
22 before setting the utility rates.

23 My understanding was that the PUC issued administrative  
24 procedures that effectively limited the company to utilizing  
25 six months actual data and six months for cast data for their

1 test year, and the PUC regulations also provide for how current  
2 the information has to be at the time the application is made.

3 My recollection is that it must not be more than three  
4 months old, so to speak. So that what we really had was a  
5 situation where a filing can be made. By the time the proceed-  
6 ings are complete, all of the time period for that test year  
7 is essentially going to be historical.

8 Let me go on to say, though, that rate case rules and pro-  
9 cedures are not my area of responsibility and I am giving you  
10 what my understanding is, hoping that will be helpful rather than  
11 just telling you I am not qualified to talk about it.

12 Q Let me see if I understand at least what your  
13 understanding is. Maybe we can share ignorance on this. The  
14 date at which a unit goes into commercial operation is the date  
15 at which it becomes possible or eligible to be included in  
16 the rate base; is that a fair generalization, at least?

17 A I think that is accurate, but I would put the  
18 emphasis on the other aspect of it. It is that time at which  
19 we are no longer able to treat that investment as  
20 construction work in progress.

21 Consequently, we must handle it, from an accounting stand-  
22 point, as plant in service. The issue is whether or not that  
23 additional investment and the expenses associated with it are  
24 adequately covered by rates.

25 Q You said you filed a request for a rate increase that



1 included the cost of TMI 2 in the rate base. Was that done  
2 in late 1977 or early 1978?

3 A I think both the Met Ed and Penelec rate filings  
4 were early 1978.

5 Q Early 1978?

6 A That is my recollection.

7 Q Could you have asked -- could that have been  
8 accomplished prior to the time the unit went into commercial  
9 operation? Was there any possibility that you could have  
10 gotten a rate increase effective in May of 1978 when TMI 2  
11 was not yet scheduled to go into commercial operation until  
12 September of 1978, let's say?

13 A I think we clearly could have gotten a rate order  
14 at that time, but I don't know whether it could have included  
15 an assumption of TMI in rate base.

16 One of the options that we recommended be considered by  
17 the Commission was proceeding with issuing us rates which  
18 assumed TMI 2 were in operation, and we would voluntarily  
19 suspend imposition of those rates until it did, in fact, go  
20 into service.

21 There was at least dialogue about this kind of approach.  
22 The regulatory process is so time-consuming and resource-  
23 consuming, we were looking for ways in which to have TMI 2  
24 adequately recognized without being caught by the vagaries  
25 of the scheduling development in putting it into service.

# 14

1 Q So the incentive or the desire to get the unit  
2 into commercial operation by the end of calendar 1978 from  
3 a rate base point of view alone was the desire to have it  
4 in operation during the test year that applied to that rate  
5 filing that had been made, or made by the various companies  
6 previous to that?

7 A Yes, because as I understand it, that would remove,  
8 as a matter of contention, whether or not subsequent rates,  
9 which we had not received at the end of 1978, could properly  
10 reflect TMI 2, even though TMI 2 would subsequently be in  
11 service and be in service even prior to the issuance of those  
12 rates.

13 I think it was our position that it could still be included  
14 in the calculation of the appropriate rates but the incentive  
15 from the company standpoint -- the only incentive that I know  
16 of -- to have it commercial by the end of the year was that it  
17 removed that as an issue before the PUC.

18 I might point out some argued, I recall, that even were  
19 it in service within the test year, it should not be included  
20 in rate --

21 Q But you felt it would be better off if it got into  
22 service by the end of the test year?

23 A Yes, that was my perception.

24 Q I have asked you about the relationship between  
25 getting to full power testing and completing the NRC's test

1 program on the one hand, and going into commercial operation  
2 on the other.

3 Let me ask you a slightly different question. That is  
4 about the relationship between your own test program and going  
5 into commercial operation. I think you developed your own  
6 test program and you had something called a master test  
7 index or master test program, something like that, is that  
8 correct?

9 A The master test index was the list of test procedures  
10 which governed the testing.

11 Q Did that include various tests not required by the  
12 NRC test program?

13 A Yes.

14 Q Was it --

15 A Let me perhaps clarify that a bit, inasmuch as I  
16 think that the NRC was privy to all of our test plans and I  
17 think we probably described the secondary plant test program,  
18 but my presumption is that the NRC was not in a position to  
19 apply regulatory authority on portions of the test program that  
20 didn't relate to nuclear safety.

21 Q Is it part of the criteria that were developed in  
22 this review board document, or, rather, the criteria that the  
23 review board used, to complete your own test program? Was  
24 there a direct link between these criteria and your master  
25 test index for unit 2?

1           A           I don't recall offhand what is stated in this docu-  
2 ment here in front us, 2.6.1.1. The requirement is tested  
3 per the approved test plan. And that includes the total test-  
4 ing program, not just the portion subject to regulation. I  
5 would like it clarified, though, that test program administra-  
6 tive controls provided for waiving some portions of the test  
7 or completing portions of the test and leaving for a later  
8 date the completion of other portions as the systems became  
9 available, so that the expectation was that the Review Board  
10 would review those portions of the test program that had not  
11 yet been completed if there were any and make a judgment  
12 as to whether the incompleteness of those portions were  
13 grounds for not declaring the unit commercial.

14           The board clearly had the authority and the responsibility  
15 to make that judgment with regard to uncompleted test items.

16           Q           Do you recall whether the Review Board did, in fact,  
17 approve the waiving or omission or postponement of some tests  
18 that had originally been in your master test index?

19           A           My recollection is that there were identified  
20 something like six tests not yet completed. I may be confusing  
21 that Review Board with Homer City 3. I am not confident. I  
22 think the minutes of that meeting speak for themselves in that  
23 area.

24           But my recollection is that there were identified some  
25 tests which we didn't believe impacted on readiness for

1 reliable operation that were targeted for later completion.  
2 There may have been one or two that was proposed for deletion  
3 which we didn't object to deleting. I think there were a  
4 number of tests which were identified as to portions of those  
5 tests having yet to be completed. I think there were items not  
6 yet complete certainly at the time we met and part of the  
7 obligation of the kind of subcommittee we set up for the last  
8 iteration on this was to assure that the portion of the testing  
9 program identified by the board as being these prior to  
10 commercial operation, but not yet complete at the time the board  
11 convened had been satisfactorily completed.

12 Q How many times did this board meet -- actually  
13 convene and meet? Was it just this one meeting October 26?

14 A Yes.

15 Q Was that the intended purpose of it, to convene at  
16 a late date -- that is, a date near to commercial operation --  
17 and pretty much review everything that had happened up to then  
18 and make a decision at that time?

19 A Yes. That was the concept. The approach  
20 principally was to do the review by looking at exceptions as  
21 opposed to a review of all of the things that were according  
22 to plan.

23 Q In other words, the plant staff was supposed to come  
24 in and say, "We have done everything but the following things--"  
25 and then the Review Board would make a decision which of those

1 had to be finished, and if some didn't, which ones could be  
2 postponed or waived for commercial operation?

3 A Yes. There was certainly that aspect to it, but  
4 there was also to satisfy ourselves that the plant staff and  
5 the project people were being objective about what had been  
6 completed.

7 We did have discussion on those portions that they didn't  
8 identify as needing discussion with regard to exceptions and  
9 there were many areas where we brought in people who didn't  
10 have line responsibility to review the status and report to the  
11 board on what their review identified.

12 Q Why was the subcommittee formed?

13 A The scheduling of the board was difficult to do on  
14 a very short term because of the nature of the responsibilities  
15 of various members, so we initially targeted for as close to  
16 commercial operation as we thought we would be able to hit,  
17 and I think we were looking at the time we scheduled, the end  
18 of October, being completed actually the end of October.

19 ... the time the board met, I think we were looking at some-  
20 where in the middle to latter half of November as being the time  
21 of completion of the test program.

22 The subcommittee was established because it was clearly  
23 recognized at the time of the board meeting that there were a  
24 number of incomplete items which the board should take a  
25 position on officially before the unit was declared commercial.

1           Q           So it wasn't in the original master plan to have a  
2 subcommittee , but the length of time made it necessary  
3 basically to have another meeting?

4           A           Well, I don't think we felt it was necessary to have  
5 another meeting. It was necessary for a core group of us, I  
6 guess, who had most direct interest, or perhaps more direct  
7 responsibility, to review among us, as it were, those open  
8 items or those items that were open as of the time of the  
9 convening of the full board before the unit went commercial.

10           It is a very difficult issue to imagine in a sense,  
11 inasmuch as we are trying to hit a moving target a month or  
12 two ahead of the time we want to convene the board, to try to  
13 have that board close enough to the end of the process that  
14 a sufficient amount of process is complete that we can sign  
15 off on it.

16           In retrospect, that is probably an unrealistic expectation.  
17 I would anticipate the approach we took is it will probably  
18 be a more routine method. That is, we would still try to  
19 target a meeting of the full board as close to commercial  
20 operation as we can and then identify relatively restricted  
21 list of item for which some subgroup of the board would have  
22 to pass on before we went commercial.

23           Q           You talked about shooting at a moving target. Can  
24 you tell me what you recall about how that target moved over  
25 time? Some of the letters that were written I think in July

1 of 1978 to the PUC indicate that you were shooting at late  
2 October as a date for commercial operation at that time. Then,  
3 as of October 26, it still looks like you are shooting at late  
4 November.

5 Yet the actual date isn't until late December. Do you  
6 recall whether, from the time you got the main steam safety  
7 relief valves back in, the new ones in, whether there were  
8 other major things that delayed that date until the fall?

9 A Well, I don't know to what extent I would call them  
10 major things, but there were other items that delayed the unit,  
11 and I think I would want to go back and review some records  
12 rather than try to reconstruct it from memory. The end of  
13 October is my recollection of what we were identifying through  
14 the summer, and I think that we didn't go to the end of  
15 November until early in October. I don't remember just what  
16 specific problem we had that caused us to shift it that month.  
17 Then I know there were some additional problems, which I  
18 considered in the nature of those to be expected in the start up  
19 of a complex plant common to the experience of other similar  
20 facilities during their start-up program.

# 15

21 Q Let me show you what we have marked as Exhibit 14  
22 and ask you to explain what that is. At least, pages 1 through  
23 6.

24 A This is, in effect, the cover document for the report  
25 of the Review Board. An integral part of the report was



1 material that was disseminated at the meeting as prepared  
2 material for the presentations.

3 Q Would this be the report of the board or minutes  
4 of the board in some sense based on the October 26 meeting  
5 and perhaps on any later developments up until the date this  
6 was issued?

7 A Yes. The items that received general discussion  
8 in each of the various criteria areas were summarized in this  
9 report .

10 The write-up was based upon notes taken at the meeting  
11 by John Bachofer, it is my recollection, but it may have been  
12 by someone for him.

13 Q Perhaps you can explain to me, if all of the testing  
14 program had not been completed as of the date when various  
15 individuals signed or appeared to have signed off on this  
16 document, which is December 18 to 21 or thereabouts, why is  
17 it that the conclusion 2.0 on page 1 states that it is deter-  
18 mined tha- the unit is technically ready for commercial  
19 operation?

20 A I think it was intended to reflect the total board's  
21 consensus that all the information provided to us at the time  
22 of the meeting of the board on October 26 indicated that a  
23 degree of completeness as to preparations for plant operations  
24 and testing program up to the 75 percent power level, that led  
25 us to conclude that the unit was ready to be placed into

1 commercial service.

2 I think that statement has to be placed in the context of  
3 the total minutes, which obviously identify a caveat to that  
4 conclusion, that caveat being that the balance of the testing  
5 program between 75 and 100 percent were to be followed and  
6 reviewed by the subgroup, and that conclusion presumed that that  
7 group would not identify any adverse information towards  
8 placing the unit in commercial operation.

9 Q If you look over on page 6 at paragraph 5.0, you  
10 will see that this paragraph specifically indicates that there  
11 are matters outstanding to be completed, including completion  
12 of the test program, completion of some tests.

13 A I don't know what your question is.

14 Q Yet, paragraph 2.0 seems to be in conflict with that  
15 saying that the plant is technically ready for commercial  
16 operation.

17 A I don't think so at all.

18 Q Does that mean technically it is ready subject to  
19 the things set out below being successfully completed?

20 A I think if you go through the various paragraphs,  
21 one could see what restraints we indicated vis-a-vis the  
22 status of these.

23 I think the only item in here that was considered a  
24 constraint before being ready to go commercial is 2.6 on test  
25 completion. These items don't represent the only listing of

1 actions yet to be completed on the plan, but they represent  
2 those that were identified in the course of the review for  
3 which no responsibility had apparently yet been assigned for  
4 follow-through and correcting.

5 On a plant as complex as this, I think it would be  
6 completely unrealistic to expect that ten years after the plant  
7 is in service you are not going to still be able to identify a  
8 list of items that require some action. Hardware type of items  
9 and administrative procedural kinds of items. And that is why  
10 the board is desirous of insuring the right level of management  
11 judgment is brought to bear on putting it into commercial  
12 service, recognizing there are going to be a lot of open  
13 issues. That is why I think you see these particular ones  
14 called out.

15 The board felt that because of either the lack of dressing  
16 themselves up until that point by the organization or the  
17 shared responsibility for closing them out between various  
18 elements of the organization made it necessary to be specific  
19 with regard to these items.

20 Q Maybe I am not understanding your answer, or  
21 perhaps I am not even communicating my question right. What  
22 I am trying to ask you is this: the document appears to be a  
23 certification that the unit is ready to go into commercial  
24 operation. That is, that all the criteria that you, yourself,  
25 set forth have been satisfied. Yet, it is signed by various

1 people a week or two prior to the time when we know that the  
2 test procedures had finally been finished. It appears as though  
3 these people are saying on December 18 all the criterial have been  
4 met. That is what the document seems to say to me. That is  
5 what I can't understand.

6 A Even differently than that, I would say this  
7 document says that the board was satisfied on October 26 that  
8 they had no information at that time which was the basis for  
9 not proceeding to place the unit into commercial operation,  
10 once its test program had been completed.

11 Further, since the test program was not yet complete and  
12 it was necessary for the board to, in effect, function on the  
13 information that would subsequently be developed in the course  
14 of completing the test program, that that endorsement by the  
15 board of that statement of readiness was contingent upon the  
16 subgroup of the board reviewing the additional information  
17 that developed during the course of the completion of the test  
18 program and satisfying the four of them, and we have the  
19 opportunity for comment by the state superintendent, that the  
20 balance of the test program after October 25 or 26 didn't  
21 really identify any information which was the basis for  
22 reconsidering that judgment.

23 If the words are a little inartful in that sense, I  
24 guess they have to stand on their own merit, but I think from  
25 an operative standpoint of management people that were involved

1 with this, that was the context within which they endorsed  
2 those words.

3 Q So --

4 A I think the only reason this had some of the dates  
5 as late as it did is because we circulated among the parties  
6 the original. The status in the report absent addendum A  
7 -- excuse me, supplement A -- I believe would have been signed  
8 off on October 26, had it been available at the completion of  
9 the meeting. Really reflected the status and position of the  
10 Board as of October 26 and supplement A reflects the position  
11 of the subgroup of the board which was in effect empowered to  
12 act or was charged with making that judgment on the balance  
13 of the plant by the total board.

14 Q Under this procedure, what would you have done if you  
15 had had some significant problem with one of the late  
16 tests? For example, suppose the full power generator trip test  
17 -- virtually the last or the last test -- had posed some kind  
18 of problem? Would you then have had to go back to the full  
19 board and review that problem with the full board before going  
20 forward again?

21 A I can't answer that, because you have to realize that  
22 these procedures are not legal requirements, as it were.  
23 They are tools used by management of the company. As the service  
24 company officer responsible for the project, I think it would  
25 have been my obligation to utilize proper judgment in deciding

1 whether or not circumstances called for a reconvening of the  
2 board.

3       Nevertheless, I think that even under the most arbitrary  
4 approach on my part, there would have clearly been the  
5 opportunity for my counterparts in the operating company to  
6 have said, "Wait, I don't agree with where we are, " or "I  
7 don't agree with the resolution of this problem," and I don't  
8 think we would ever have declared the unit commercial with  
9 there being the possibility of any substantive disagreement  
10 among the four vice presidents of generation as to the  
11 readiness of the unit to be in commercial service.

12       I just would not be interested in placing myself in the  
13 position of having that type of issue come up after the fact  
14 and I would have been quite cautious about the basis for my  
15 recommendation that it was ready for commercial operation,  
16 and I am quite confident it would never be commercial without  
17 consulting with me.

18       I might have been overruled, in theory, at least, if I  
19 disagreed, but I doubt if that would happen either.

20       Q       Who was responsible for completion of the test  
21 program onsite? Was that Mr. Toole? Ron Toole? During  
22 the latter half of 1978, let us say.

23       A       He was the test superintendent. In terms of the line  
24 organization, he reported up through, he reported to the project  
25 manager, who was John Barton, at that time.

1 Q Who did Mr. Barton report to?

2 A To Dick Heward, who was manager of projects who  
3 reported to Bill Hurst, director of projects, who reported to  
4 me. Dick Heward had previously been the project manager.

# 16 5 Q Did you, yourself, have very much contact with Mr.  
6 Toole? Personal contact with him.

7 A No, I didn't. I didn't have any in the 1978 time  
8 frame. I did in the latter half of 1977 when they were finish-  
9 ing construction and finishing the prefuel load portion of the  
10 test program. I took part in a number of meetings here at the  
11 site to -- which were directed as resolving certain problems  
12 and identifying the schedule to which we were working.

13 From the first of the year onward, the test portion, when  
14 the plant was available for testing, went pretty much accord-  
15 ing to plan. The delays in schedule were the result of  
16 problems that came up that weren't related to the test program  
17 per se.

18 Q Do you remember what the major problems were that  
19 you had to resolve in late 1977 with respect to scheduling?

20 A Well, they weren't scheduling directly. There were  
21 a number of open items that had to be finished up. There was  
22 a larger number than I had anticipated in mid-1977, and we  
23 had brought on to the site in the summer of 1977 Catalytic  
24 Corporation to support maintenance on Unit 1 and to finish up  
25 the construction of Unit 2, which at the time we brought them on

1 was anticipated to be a smaller scope effort than it eventually  
2 became when they got onboard and we sort of had a fresh look  
3 at all of the items that had yet to be completed.

4 Q Does that mean you found UE and CE hand't done a  
5 lot of things you thought they had done?

6 A Yes, I think it is accurate to say that we didn't  
7 have the visibility and consequently the awareness of a number  
8 of open items which were the responsibility of UEC at that  
9 point.

10 I don't know that I can put quite the kind of positive  
11 construction on it that you did, that we consciously thought  
12 they were completed and they weren't, but certainly there was  
13 not an awareness on our part of many of the things that had yet  
14 to be completed.

15 Perhaps I could even clarify that, more to the issue of  
16 what was involved in completing. That was probably the larger  
17 aspect of it, the estimate, the forecast of the amount of  
18 work that would be involved in completing certain items as  
19 opposed to whether or not they were yet complete.

20 Q When a test was completed and Mr. Toole evaluated  
21 whether he thought the test had been completed satisfactorily,  
22 in the case of a safety-related system or primary system item,  
23 what kind of check or review on his judgment, if any, occurred?

24 A There was a test working group formally established.  
25 The test working group had to review test results and pass on



1 the acceptability of the test results.

2 Q Who was a part of that group? If you can recall,  
3 approximately how many people? Those that you remember.

4 A I would expect it normally ran five or six members.  
5 The test superintendent, probably one member of his staff, the  
6 state superintendent or probably more correctly, the unit  
7 superintendent, B&W, Burns and Rowe, and if it was something  
8 like the turbine generator, then effectively a member of the  
9 vendor for that major piece of equipment was incorporated into  
10 the test working group for that particular activity.

11 Q These are all onsite people?

12 A Yes.

13 Q Was there any offsite review? Did those judgments  
14 get any review by GPU Service Corporation people offsite that  
15 you can recall?

16 A That was not part of the system we built in on a  
17 routine basis. The test working group had the authority -- and  
18 certainly the responsibility -- to utilize staff support on  
19 evaluation of information, and B&W did a lot of that type of  
20 staff work.

21 I am sure Burns and Rowe provided a lot of effort in that  
22 area.

23 Q I am talking about formalized review now. Regular  
24 review chain of some kind.

25 A I understand that. As I indicated, that had not been

1 part of the test program. What we see under the action items  
2 outstanding as the last entry related to some desire on our  
3 part to have service company staff look at the test results.  
4 But it was felt -- and I think legitimately so -- that we had  
5 brought to the test working group the staffing and supported  
6 the members of the test working group and they had the technical  
7 competence to evaluate the test results.

8 It also need be recognized that the criteria to be fulfilled  
9 by the test were established ahead of the test, so that what was  
10 being evaluated really was the satisfaction that the test had  
11 demonstrated the criteria that were previously established were  
12 in fact fulfilled.

13 Q Did the quality assurance group get involved at  
14 any point in reviewing tests?

15 A Yes. The test program was clearly included in  
16 our quality assurance programs.

17 Q What does that mean? Does that mean that the test  
18 results got a second look?

19 A Not in a general sense, it does not.

20 Q The test working group was that review?

21 A No. The quality assurance program, I think, had  
22 to do with insuring that the test working group's implementa-  
23 tion of the test program fulfilled their own criteria and the  
24 FSAR criteria for the test program.

25 It would have, on a surveillance basis -- on a sample basis

1 -- have looked at the real time execution of the work to be  
2 sure procedures were being followed, that instrumentation  
3 was within its calibration as required, backing up the  
4 personnel that was actually performing the test program from  
5 that sence, but quality assurance is not designed to do an  
6 independent -- let me say it differently.

7 The people who have quality assurance stamped on their  
8 foreheads, so to speak, are not in place to do an independent  
9 review of engineering effort for technical adequacy. If  
10 independent reviews of engineering work for technical adequacy  
11 are required, then the quality assurance program insures they  
12 are in fact set forth as a requirement and are carried out by  
13 a technical group independent of the group that was actually  
14 performing the activities.

15 So they are both still engineering functions. That is,  
16 the initial work and review of that work are engineering  
17 functions. Even the need for quality assurance provides me  
18 confidence that where that is required, it is done.

19 Q So the quality assurance program would pick out a  
20 given test and would follow it through from beginning to end  
21 to see that the people who were supposed to do it did it. The  
22 people who were supposed to review it reviewed it. That the  
23 technical working group did what it was supposed to do with  
24 respect to that test.

25 A I would expect they would do that in some instances.

1 I would expect the more common experience is to take a portion  
2 of the test and look at the process of a portion of a test  
3 from beginning to end.

4 Many of these tests are activities that take place spread  
5 over a fairly substantial length of time; maybe weeks in many  
6 cases, months in some cases.

7 Q How about the case of balance of plant? Did the  
8 test working group review those tests as well?

9 A Yes. My understanding -- I am sure I am correct --  
10 is that our test program administration didn't differentiate  
11 as to the role of the test working group between portions of  
12 the test program subject to regulation and portions not subject  
13 to regulation.

14 The quality assurance program did.

15 Q Do you recall attending a GPU Service Company board  
16 of directors meeting in early December 1978?

17 A Not specifically, but I was attending them routinely  
18 in that time period. I very likely could have been there.

19 Q I think you said before that the only real incentive  
20 that you knew of to get the plant into commercial operation  
21 by the end of the calendar year related to this desire to have  
22 it go commercial within the test year.

23 My question is getting at whether you were aware of any  
24 tax -- federal tax incentives to have the plant go commercial  
25 before the end of the calendar year?

1           A           My understanding in December of 1978, when I was  
2 involved with making decisions in these areas, was that whether  
3 it was commercial or not had no impact on any tax treatment.  
4 Whatever tax treatment was available to the company with  
5 commercial was available to it based on the portion of the test  
6 program that had been completed well before December. I  
7 specifically reviewed a document that was prepared by tax  
8 people in the accounting department, I believe, in which they  
9 asked whether we had taken TMI Unit 2 through the degree of  
10 testing that a reference case had completed that was the basis  
11 for a tax ruling.

12           My recollection is that we had completed perhaps even prior  
13 to the steam valve problem, but certainly in September, testing  
14 of the program equivalent to that that was the basis for the  
15 tax ruling.

16           Q           Do you remember being shown the tax ruling itself, the  
17 reference case that you referred to or the ruling that grew  
18 out of it?

19           A           I don't remember if I was shown that, but I believe  
20 I was. If it is a one- or two-paragraph kind of summary of  
21 it, at least I believe I read that much.

22           Q           You said you were shown a document. Was that the  
23 document you were referring to or were you referring to a  
24 company memorandum that outlined the criteria necessary to  
25 meet this ruling?

1           A           My recollection is that there was a company memorandum  
2 developed which gave the company staff opinion on this matter  
3 based upon that reference.

4           I believe that I was asked by the controller --

5           Q           Who would that be?

6           A           Ed Holcomb, what the condition of TMI 2's test  
7 program was vis-a-vis the reference case, and I believe that  
8 at the time he talked with me -- it was on the telephone and  
9 he read me a couple of paragraphs that described the basis  
10 for the tax ruling -- I gave my opinion where TMI 2 was  
11 vis-a-vis that reference case, and I believe I subsequently  
12 saw a memorandum which, in effect, said that that was not an  
13 issue for us with regard to being commercial by the end of the  
14 year, which had within it or attached to it the couple of  
15 paragraphs that at least summarized that reference case.

16          Q           When you say that set forth reasons why this was not  
17 an issue, was that a memorandum that set forth the argument  
18 that the unit had already met these requirements sometime  
19 earlier in the year?

20          A           Would you ask me that question again? I am not  
21 sure I followed it.

# 17       22          Q           My question was whether the memorandum or document  
23 that you saw set forth an argument or a position as to why the  
24 unit had already met earlier in the year whatever requirements  
25 were necessary under the tax laws.

1           A           My recollection is that the memorandum just set  
2 forth the factual information relative to the reference case  
3 and what we had on TMI 2 and drew the conclusion that the  
4 company was in position to treat the unit from a tax standpoint  
5 in a similar manner whether or not it was commercial.

6           Q           Whether or not it was declared commercial before  
7 the end of calendar '76?

8           A           Right.

9           Q           Do you recall what the crucial element of the tax  
10 ruling was; was it the operating license or was it  
11 synchronization with the grid or a certain power level?

12          A           I am not even sure the unit was synchronized with  
13 the grid in the reference case. I think my impression was  
14 that the IRS would consider the unit appropriate for taking  
15 a tax credit on the basis that it had the operating license  
16 and had loaded fuel, and it was, therefore, from their stand-  
17 point, a complete installation. The demonstration of the  
18 functionalness of the investment was not part of their concern.

19                   MR. FRAMPTON: Off the record.

20                   (Off the record.)

21                   MR. FRAMPTON: On the record.

22                   For the record, Matt, if there exists such a  
23 document dated in or around November-December of 1978  
24 describing the company's position with respect to tax treatment  
25 of Unit 2, we would like to have that made available to us for

1 inspection.

2 THE WITNESS: I would like to volunteer something here  
3 if I may, because I think it bears on certainly the atmosphere  
4 within which I was functioning.

5 BY MR. FRAMPTON:

6 Q Please do.

7 A That was the expression in late December, when  
8 completion of the test program before the end of the year was  
9 problematic, on the part of Dieckamp and Kunz to me that we  
10 would complete the test program as we said we would, and if  
11 that was January 2 instead of the 31s of December, why, so  
12 be it. The commitment had been made and they effectively  
13 wanted me to understand that I was not under any pressure to  
14 declare the test program complete or to take the approach of  
15 declaring it commercial at some partial load, and, in fact, we  
16 purposely backed off the schedule over the Christmas weekend  
17 from a home office standpoint and the direction I gave to  
18 the people here at the site was to not provide extra manning  
19 to expedite the test program, but to the extent that normal  
20 shift manning and people that would normally be available  
21 over that holiday weekend were available to proceed with the  
22 test program, fine, but that, unlike many previous holiday  
23 weekends, for several years, we weren't going to put the pressure  
24 on the personnel here, the staff, to go full speed ahead over  
25 the weekend.



1           It was principally -- I guess it grew out of concern on my  
2 part as to whether it would even be prudent to put that type of  
3 pressure on them. It might be counter productive in terms of  
4 the attitude and morale of the people who would be doing the  
5 test program.

6           I felt we would gain more in the relatively short future  
7 to try to let people have that weekend and come back in after  
8 the holiday weekend and pick it up. The interest and kind of  
9 sense of pride, I think, on the part of the people here, the  
10 plant staff, was such that we did do substantial testing over  
11 that weekend.

12           It was a very productive weekend. I think the tone was  
13 set from the top of the corporation that we would be deliberate  
14 in what we did.

15           Q        I certainly wasn't going to miss the question that  
16 would have elicited that answer, but since you brought it up,  
17 why don't we explore that a little bit?

18           You say that you, yourself, gave instructions not to push  
19 over the Christmas weekend. If we wanted to corroborate that,  
20 who would we talk to? Are there any documents that would  
21 reflect that that you could point us to?

22           A        Well, there was nothing put out by me in writing  
23 to that effect. I think that --

24           Q        If you were us, how would you look to show that  
25 from other sources besides your testimony?

1           A           Jack Herbein and John Barton or Dick Heward. I guess  
2 one could also look at the payroll records for that weekend  
3 and see to what extent there were more people here than were  
4 necessary for normal manning. If extra people were here, I  
5 don't think that would necessarily say that what I said was  
6 incorrect or that I am misleading you on it. It would reflect,  
7 I think, assuming those people wanted to come in and work, that  
8 they came in on a voluntary basis because of their desire to  
9 keep the thing moving. There may well have been, with the  
10 attitude that existed at that time, a fair number of people  
11 that did that. But what I wanted to avoid was putting pressure  
12 on people to work over that weekend that weren't scheduled to  
13 work and didn't want to work.

14           Q           What do you recall about your conversations with  
15 Mr. Dieckamp in which he expressed a view that the test  
16 program should be completed one way or another whenever it  
17 was finished? Did he eventually tell you in so many words  
18 that he didn't want it rushed or that it wouldn't be curtailed?

19           A           I think --

20           Q           What was it that gave rise to his having to say this?

21           A           I think I reviewed probably two or three times  
22 during the month of December with Kunz and Dieckamp, one or  
23 both of them, how the test program was progressing, and I am sure  
24 I gave Dieckamp updates on it a couple times a week, at least,  
25 through that month. There was discussion during the middle of

1 December, were we going to make it or weren't we going to make  
2 it by the end of the month. Not really so much with regard  
3 to the end of the month as, you know, what additional oppor-  
4 tunities for slippage was there? Because we were down near  
5 the end and we were again trying to forecast that particular  
6 time when we would complete the test program, because there  
7 were a lot of people who we were talking to about the plant  
8 schedule at that time.

9 A lot of people were trying to keep abreast of what was  
10 going on who were external to the company. I don't remember  
11 exactly which meeting it was, but I certainly remember, prior  
12 to Christmas, the guidance from Dieckamp and I am confident,  
13 based on his discussion, that it was based upon conversation  
14 with Kunz, that they recognized the possibility that we would  
15 not complete the test program prior to the end of the month  
16 and if that was the case, then we would not declare commercial.  
17 We had made that commitment to the PUC that we would complete  
18 it and we would abide by that.

19 We would not go back to them with a suggestion that they,  
20 in effect, consider agreeing to a different approach than  
21 that. We certainly wanted to be sure that we were deliberate --  
22 I won't say hasty -- but that we were deliberate in executing  
23 the test program and careful not to do something that was  
24 dumb at this point of time.

25 In the sense of doing something dumb, to rush through

1 something that we needed to be more reflective about what we  
2 knew and where we were and where we were going.

3 MR. FRAMPTON: Let's take a couple of minutes.

4 (Recess.)

5 MR. FRAMPTON: Back on the record.

6 BY MR. FRAMPTON:

7 Q I think you said before that you did have some  
8 meetings late in 1977 about construction and scheduling issues.  
9 Do you recall late 1977 test in which the reactor coolant pumps  
10 were damaged? The seals were damaged or identified as a  
11 problem?

12 A No, I don't. I knew that we rebuilt the seals, we  
13 modified the seals. I don't recall at this time that we had  
14 any tests where those seals were, in fact, damaged.

15 Q We were talking about whether there were any incentives  
16 in your mind other than the test year, incentives to get the  
17 unit on line before the end of 1978. Were there any discussions  
18 that you had with Mr. Dieckamp or Mr. Kunz as to whether --  
19 let me strike that and start by asking you another question.

20 Were you aware late in 1978 there was going to be a hearing  
21 or argument I think before the Administrative Law Judge of the  
22 PUC in early or mid-January on the rate case? Some kind of  
23 proceeding at that time in January of 1979?

24 A I fully expect I would have been aware of that. I  
25 had taken part quite extensively in those hearings.

1 Q I think you said a little while ago that even if  
2 the plant hadn't been declared commercial before the end of  
3 1978, you still would have argued that it could have been  
4 included in the rate base. The company would have taken that  
5 position?

6 A If I said that, that is overstepping really what I  
7 could conclude. I don't know what the company's position  
8 would have been, had that not been in operation. I am only  
9 saying, having it in operation removed it as an item that  
10 had to be addressed.

# 18 11 Q The question I want to ask is whether you had any  
12 discussions with anyone to the effect that even if you didn't  
13 get the plant into commercial operation at the end of 1978,  
14 nonetheless, if you got it into commercial operation in early  
15 1979, before this hearing -- before the PUC or its examiner,  
16 that would still be very desirable because you would be able to  
17 repeat at the hearing.

18 Well, the plant has gone into commercial operation. Do  
19 you recall any discussions along those lines?

20 A I don't specifically. I think the January proceedings  
21 were an expression of oral arguments on the case. I am sure  
22 I was aware of that meeting but I don't remember any discussion  
23 with anyone as to what the impact of saying it was in service  
24 at that time even though it wasn't by December 31 -- I don't  
25 recall that conversation.

1 Q Do you recall whether there was any penalty or  
2 any concern about a penalty for failing to meet the date on  
3 which you had made a prior commitment to the pool that Unit 2  
4 would go into commercial operation?

5 A My recollection -- my understanding of the obligation  
6 of the pool was that June 1, 1979, was the important date  
7 to us in terms of commitment. Although I expect that we may  
8 have, at one time, have committed to have the unit in service  
9 in June of 1978 to the interchange, I expect once we identified  
10 that we were likely to miss that date, that it probably was  
11 diverted a full year or postponed a full year in terms of a  
12 commitment on planning to the pool.

13 Q That was your understanding as of late 1978? That  
14 June 1, 1979, was the important date there?

15 A I believe so.

16 Q Do you recall any concern about satisfying the  
17 120-day guideline that is contained in some FERC regulations  
18 for the test period?

19 A Yes.

20 Q Are you familiar with that rule 9-D?

21 A Yes.

22 Q What do you recall about that rule and the concern  
23 to meet that time limit or be concerned about the time limit  
24 in some way?

25 A My recollection is that that was primarily an

1 administrative concern.

2 The 120-day criteria, so to speak, had been established  
3 by the Federal Power Commission, the predecessor to the Federal  
4 Energy Resources Commission, at a time which, to my understand-  
5 ing, it was directed more at fossil plant and fossil plant  
6 experience.

7 I was not aware of any company ever having any difficulty  
8 with getting FERC's agreement to an extension of that 120-day  
9 period for nuclear units. I am not even aware of any difficulty  
10 they had getting an extension for fossil units when justifica-  
11 tion was shown for why the 120-day period shouldn't be brought  
12 to bear.

13 So I didn't consider it a problem other than being sure  
14 to keep FERC apprised of the extension of our start-up program  
15 and providing the proper documentation for them to make a  
16 determination that the 120-day criteria could be waived.

17 Q In some of the documents that we have seen, there is  
18 a reference to something called a unit acceptance test. Are  
19 you familiar with that term?

20 A Yes.

21 Q Can you help us with what it means?

22 A The terminology comes out of the contract with  
23 Babcock and Wilcox. The contract, as I recall -- it speaks  
24 for itself -- identified that within 30 or 90 days -- I forget  
25 exactly what it was -- but within some specified time period

1 after B&W identified to the company that the unit was ready  
2 to conduct its unit acceptance test, the company would conduct  
3 the test or, for payment purposes under the contract, would be  
4 considered to have been conducted if we failed to meet that  
5 window. The test was a four-hour test that basically only  
6 demonstrated that the unit provided its warranted output of  
7 steam, or energy in the form of steam. It was not a total  
8 overall measurement of performance of all the systems. It was  
9 important from a contractual standpoint.

10 Q Was that test, in fact, performed for Unit 2?

11 A Yes.

12 Q Do you remember when?

13 A My recollection is it was the last weekend of  
14 February. I know that I was not interested in formally per-  
15 forming that test prior to the end of the period in which I  
16 was permitted under the contract to perform it. It was a  
17 formality in our case because the warranted output related to  
18 about 87 percent power and clearly we had the energy output  
19 equivalent to 87 percent power. So there was no incentive  
20 from my standpoint to perform that test before the end of the  
21 period that the contract provided for performance after  
22 notification, so that if we uncovered anything in the way of  
23 performance anomalies, in the meantime, I had that much more  
24 leverage to talk with B&W about corrections.

25 So I directed specifically that that test be scheduled for



1 the last weekend before that time period ran out and my  
2 recollection is that that was the last weekend in February.

3 Q Were you ever told or were complaints ever made to  
4 you by anyone that the test schedule was being rushed or that  
5 there was not enough time allowed in the test schedule to perform  
6 the tests that you had set forth in your own criteria to  
7 conduct before going commercial?

8 A No. I don't recall anyone making an observation to  
9 me that the schedule was insufficient for conducting the test  
10 program.

11 I think it was recognized by all of us that the test program  
12 schedule was an optimistic one. It was certainly recognized  
13 that there was relatively minimal provision in the schedule  
14 for anomalies developing or problems developing in the test  
15 schedule but that is, I think, understood at the time the test  
16 schedules are put together.

17 It represents a relatively optimistic sequence of completion  
18 of the test program. I think my answer to that would have been  
19 that may be of interest to the people from perhaps reliability  
20 of our forecast when we go commercial but didn't impact at all  
21 on the conducting of the test program because we were going to  
22 conduct the test program that was required, whether it extended  
23 from February to the end of December, or whether it went from  
24 February to July. The test program requirements were spelled  
25 out and those were to be completed. So the pressure of schedules

1 was not something that we would take shortcuts in order to  
2 make schedules, so to speak.

3 I don't think there was that attitude expressed on the part  
4 of the management of the project, management of Met Ed and  
5 certainly not on my part that I am aware of.

6 Q Do you think there was a strong feeling in the  
7 organization that it was desirable and, indeed, there were  
8 specific incentives to finish the testing and go commercial  
9 before the end of the calendar year, either monetary incentives  
10 to the company or otherwise?

11 A I am not aware of anybody within the company keying  
12 financial incentive to the end of the year. I guess I may have  
13 discussed in my staff meetings the posture of being commercial  
14 vis-a-vis the rate case and not being commercial.

15 I can't recall specifically, but I might very easily  
16 have talked about that, because I usually reviewed with my  
17 staff the rate case proceedings, the importance of them.

18 The major financial incentive I think that people were  
19 aware of was the continuation of AFDC and the pressure that  
20 put on us from meeting the budget levels for the project as  
21 the schedule stretched out. I am sure throughout the project,  
22 throughout Met Ed, staff here there was an awareness that  
23 AFDC was running on the order of three and a half million  
24 dollars a month.

25 So that probably represented a larger pressure, as it

1 were, on the organization in the sense of their awareness of  
2 it than the rate case issues.

3 See, the other thing is that until the first half of  
4 December, we were extremely confident that the unit would not  
5 even be up against the end of the year for going commercial.  
6 I think it would be a fairly gross misunderstanding to think  
7 in the September-October time frame people were worried about the  
8 end of the year. Worrying about the end of October and end of  
9 November, that it was kind of a week or two weeks at a time  
10 the thing was moving out in front of us.

11 It really wasn't until December, itself, I think, that the  
12 issue started to come up in our own discussions as to  
13 whether or not we would make the end of that month.

14 Q For the record, could you identify what AFDC is  
15 and describe what that pressure was? Was that simply internal  
16 budgetary concern or did that have other financial implications?

17 A AFDC is an abbreviation for allowance for funds  
18 used during construction. It is the debit placed against the  
19 project for the interest cost on the investment in the project  
20 at a given point in time.

21 As we put together our project cost estimates, they must  
22 be tied to a project schedule. When we get within a calendar  
23 year and find the schedule stretching out significantly, the  
24 monthly AFDC charges are the major component of additional cost  
25 within that calendar year, which goes over and above the budget.

1 So that as we regularly and routinely track our budget  
2 expenditures, when we see the schedule -- when we see expendi-  
3 tures against budget, which I did at monthly review meetings  
4 with my staff, as the schedule slips out, we see not only the  
5 additional direct work and indirect work factors of cost, but  
6 on a two- or three-to-one ratio, we see the -- maybe that is  
7 not quite fair -- one-to-one or two-to-one ratio. we see  
8 the cost going up as a result of the AFDC.

#19 9 Q Am I correct in thinking that AFDC is allowable as  
10 a capital cost that should be put in your rate base when you  
11 go commercial? How is that handled?

12 A Yes. It is a recognized part of the investment  
13 cost. The AFDC rate being debited against the project cost,  
14 is approved by the PUC -- in Pennsylvania, at least -- and I  
15 think in New Jersey, as well. In fact, I am sure it is in  
16 both States.

17 Assuming that we are consistent with their approved AFDC  
18 rates, yes, we are able to have it recognized in rate base in  
19 a general sense.

20 That is taken issue with by people who have intervened  
21 in the rate case with regard to whether all of it should be in or  
22 whatever.

23 Q Or whether you should be penalized for delay caused  
24 by the company. Is that the basic argument?

25 A Yes. Conceptually, AFDC is a recognized cost of

1 the project to be reflected in the rate. FERC recognizes it as  
2 part of the investment, as part of what is allowed to be  
3 depreciated and recovered.

4 Q So you are saying the pressure to reach a cut-off  
5 point on AFDC was a constant pressure but it wasn't calendar  
6 year specific. You would like to be able to change or transfer  
7 that cost as soon as possible, whether it was October, November,  
8 December, or January?

9 A From a project standpoint, that is correct. Now,  
10 from probably the controller's standpoint, his major incentive  
11 is to get it recognized in rates. To the extent there is a  
12 gap between whether it goes into service and whether it goes  
13 into rate base, it adversely affects earnings, as I would  
14 understand it.

15 But from a project standpoint, from my viewpoint as the  
16 director of the project, my incentive -- and I think my  
17 organization's sense of pressure -- was to get it into service  
18 and try to stay as close to our forecast cost estimate as we  
19 could.

20 Q Referring again to Exhibit 14, there is a reference  
21 on page 4 to plans to blitz a certain amount of remaining items  
22 during the screen-outage. Can you explain what that means? Do  
23 you know whether the screen outage actually occurred in the  
24 case of Unit 2's test program?

25 A Let me explain first what screen outage is. It is

1 the way we identify an outage taken after the plant has operated  
2 at power for a while, during which we remove from main steam  
3 line valves fine-mesh screens, the installation of which is for  
4 the purpose of preventing any debris or corrosion that results  
5 from the construction period from entering the turbine.

6 My recollection is that that is about a 7- or 8-day  
7 procedure. We normally would like to do it after full power  
8 operation and before the unit has operated something on the order  
9 of 90 days at full power. We also had guidance from Westinghouse  
10 that indicated that some period of operation at less than full  
11 power would be sufficient from their experience to remove the  
12 screens.

13 I can't remember now when we did remove them. We didn't  
14 do it immediately before starting up for commercial operation,  
15 I don't believe, because we were only down about a day and a  
16 half at that time, as I recall, from the full load trip to the  
17 restart.

18 That would not have been enough time to remove it. I just  
19 can't remember whether we did it during an earlier outage in  
20 December or we decided to defer it until a convenient time  
21 after being commercial. My very vague recollection is we took  
22 them out in December, before we got to full power.

23 Now, with regard to the blitzing of the work -- I guess  
24 that was the other half of your question -- what that  
25 identified is that we had a lot of what we called punch list

1 items, various and sundry miscellaneous items to clean up,  
2 and that there were plans on the part of Met Ed, which the  
3 board endorsed, to put as much manpower to work during that  
4 period of offline time to correct as many of those as possible.  
5 I think the connotation I would put on that is that the company  
6 was quite willing to spend the money in that time period to  
7 take care of as many of those items as we could and clear them  
8 off the books.

9 We weren't putting a budgetary limit, as it were, on that  
10 outage work to defer some of those items until a later time  
11 for financial reasons.

12 Q Do you recall that there was an amendment to the  
13 operating license that permitted you to postpone certain  
14 hydrostatic tests?

15 A Tha doesn't ring a bell with me. Do you have a  
16 system identified that might help my memory?

17 MR. FRAMPTON: Off the record.

18 (Off the record.)

19 BY MR. FRAMPTON:

20 Q Looking at materials relating to amendment No. 1  
21 to the operating license, it appears that in February, Met Ed  
22 requested a waiver of tech spec requirements removing restric-  
23 tions on hydrostatic testing at temperatures above 180 degrees  
24 Fahrenheit, and pressures up to 2285 psig prior to initial  
25 criticality and safety evaluations by NRC states that in the

1 interest of minimizing delays, the licensee proposes that  
2 a waiver be granted to permit performance of hydrostatic tests  
3 for temperatures no lower than 180 degrees Fahrenheit and  
4 pressures no higher than 2285 psig prior to initial criticality.  
5 Do you recall what delays would have been occasioned by  
6 failure to get that change in the tech specs or modification  
7 in the tech specs?

8 A To be sure I understood, I would want to have an  
9 opportunity to look at technical specification 3.4.9.1 and  
10 figure 3.4-4.

11 I don't find that attached to the amendment. I am not sure  
12 I understand this from just the information provided here.

13 Q You don't, then, recall this particular issue of  
14 your own recollection?

15 A I remember discussion on it and I remember that  
16 we were going to seek a waiver from the NRC. We obviously  
17 reached a resolution.

18 I don't remember the details of it at that time.

19 Q Okay.

20 A Perhaps let me postulate a little bit, because I  
21 am a little uneasy that we may leave the wrong impression on  
22 this. I think that the delay involved is just the delay  
23 associated with heat-up to a higher temperature before  
24 pressurizing the 2285 and assuring ourselves that we have got  
25 stable -- or let me say uniform temperatures in the thick



1 walled vessels.

2 The worst case situation, I guess, would be that we would  
3 have had to offload the fuel to perform the test, but I don't  
4 think that that is what we are looking at, because I believe  
5 we had to do an operational test of the reactor vessel flange  
6 seal every time we replaced that, so I think it relates to  
7 the temperature at which we could do it.

8 I would want to look at that curve that identifies  
9 temperature pressure restrictions to extrapolate further on  
10 it.

11 Q Okay. One final question on this area. Can you  
12 tell me why it was necessary for you to sign for Mr. Herbein  
13 and Mr. Miller on supplement A of Exhibit 14 which indicated  
14 at the end of December that the subcommittee of the CORB was  
15 satisfied to declare the plant in commercial operation?

16 A Yes. I didn't want to propose sign-off on this  
17 supplemental we had, in fact, completed the test program and  
18 that was accomplished on the 28th or 29th of December, and I  
19 felt this document should be signed off prior to declaring  
20 the unit commercial, so my recollection is I telecopied to  
21 Herbein and to Gary Miller copies of supplement A so that they  
22 could read it as opposed to just hearing it orally, and obtained  
23 their concurrence that it was an appropriate document to sign  
24 off before signing for them. Since I was in Parsippany or  
25 Mountain Lakes, Herbein was in Reading and Miller was at the

1 site, it was not felt necessary on my part to send a messenger  
 2 on a round trip to get the signatures from them personally.

3 MR. FRAMPTON: Off the record.

4 (Off the record.)

5 MR. FRAMPTON: Back on the record.

6 For the record, we have been discussing, during the  
 7 break, the questions that I asked about amendment 1 to the  
 8 operating license and we have agreed that, since we don't have  
 9 the relevant documentation here, when you have a chance to look  
 10 at that you may want to provide us with some further written  
 11 explanation or submission relating to the facts of that.

12 THE WITNESS: Yes, sir.

13 MR. FRAMPTON: Thank you very much.

14 BY MR. FRAMPTON:

15 Q Let me ask you a couple more questions. The  
 16 questions relate to commercial operation. Do you feel, in  
 17 light of your position as basically the top corporate official  
 18 responsible for the test program, that you wielded more influence  
 19 on the commercial operation review board than the others on  
 20 the board?

21 A I think that is a difficult thing to judge. My  
 22 experience would indicate that probably one's personality  
 23 traits and general competence and degree of forcefulness is  
 24 more a determinant of the influence one has on that type of  
 25 group of what are close to peers -- or peers in this case --

1 than one 's position in the organization.

2 There are probably those that would assert that my combina-  
3 tion of characteristics are such that I might have more than  
4 the average influence on the group. I would certainly --  
5 especially in my role as chairman of the committee -- I  
6 attempted to assure that everybody had the opportunity to give  
7 voice to their viewpoints and attempted to solicit where  
8 observations weren't volunteered, what the viewpoint of various  
9 members of the board were on items on which they obviously  
10 had the capability to make a contribution.

11 I don't think it was a kind of steamroller job. I don't  
12 think I am probably the best one to observe that.

13 Q With respect to the understanding that you had that  
14 there were no tax advantages to be reaped by getting the unit  
15 into service at the end of the year because it had already met  
16 whatever tax criteria were applicable, did you communicate  
17 that understanding to other people in your organization or  
18 did you ever discuss it with them?

19 A I frankly don't know, but I also don't know that  
20 I ever discussed with them any tax considerations. You know,  
21 it was not something that I recall was a matter of conversation  
22 with my technical staff or Jack Herbein or ones like that. It  
23 may well have been, but it was, I expect, at least in a very  
24 offhanded manner if it was talked about at all. It is not a  
25 consideration we normally get involved with.

1           Before you leave this area, if you are about to, let me  
2 volunteer one other comment, I think. I really think it is  
3 germane to carrying the unit commercial or not commercial.  
4 There is nothing I would have recommended to the company we do  
5 differently than we did after December 30, whether it was  
6 commercial or not commercial.

7           To the people here at the Island, and to my staff and myself,  
8 being commercial changed nothing for us. Had it been decided  
9 for whatever reason not to declare it commercial, we would  
10 have done nothing different in the way of review of the plant  
11 performance or scheduling of its operation or anything else.  
12 The plant would have been started up as it was on the 29th  
13 or 30 and put on line and operated until some problem developed  
14 and we fixed it and put it back.

15           From our standpoint, we were approaching it and supporting  
16 it and feeding and caring for it, as it were, as a commercial  
17 unit.

18           Q           I think you said before that it was difficult for  
19 you now to identify throughout the summer and fall of 1978  
20 what the target dates were for commercial operation as time moved  
21 along and that date continued to slip. Are there any records  
22 that would show that that we could look for if we wanted to  
23 identify at any given time when the target date was as of  
24 that time?

25           A           There certainly are.

1 Q What kind of records? What are those records?

2 A There is a number of different project records  
3 that would identify that information. Various information that  
4 we submitted to the PUC, FERC, there is a document I had the  
5 staff develop that attempted to analyze the delays that occurred  
6 and how much different actions we had to take would have been  
7 expected to delay the in-service date of and by themselves if  
8 they weren't under the umbrella of some other problem.

9 Q Was there an after-the-fact analysis?

10 A Yes.

11 Q When was that prepared?

12 A I think the first portion of it was prepared in  
13 September and October, and then in March we did the last two  
14 or two and a half months of 1978. And I think that it was  
15 given to me for final review of the draft the day of or the day  
16 before the accident, and I think I signed off on it just a  
17 couple of months ago when I finally got caught back up with  
18 looking at some of those items.

# 20 19 Q After the April 23, 1978, trip, when you had a  
20 problem with the main steam safety valves, relief valves,  
21 do you recall imposing any time schedule on the Lonergan  
22 Company to test those valves?

23 A The approach we took on that problem was, first of  
24 all, to work closely with Lonergan in an attempt to resolve  
25 the problem, and in parallel with that, we started fairly shortly

1 after the incident to do the engineering and procurement  
2 activities necessary to change the valves out. We started  
3 that long before we

4 Q Gave up on Lonergan?

5 A -- were convinced the Lonergan valves weren't going  
6 to be modified to be serviceable.

7 Q Let me interrupt you and ask you, Do you recall  
8 when you located the Dresser valves at Vepco?

9 Was that soon after the testing -- let me ask it this way.

10 Was that long before you gave up on the Lonergan valves  
11 and decided to switch?

12 A Yes, it was long before that.

13 You talk about testing. There were a number of phases of  
14 the testing. There was in-plant testing. There was testing  
15 at Lonergan. Then, when the facility became available in  
16 Alabama, or Louisiana, whichever, there was testing down there.

17 Q There was at Huntsville, Alabama?

18 A Yes, I believe so. Wiley Laboratory, I believe.  
19 So we had identified, I think, the existence of the Dresser  
20 valves probably within 10 days after the incident. Effectively,  
21 we stayed with Lonergan until we were at the point where we  
22 had to make a decision whether or not to make the change-out  
23 if we were to avoid additional delay in the event we had to  
24 go that direction eventually.

25 Up until the time that the continued testing of the Lonergan

1 valves would not extend our schedule, we stayed with them.

2 I think very shortly -- day for day -- within a matter of  
3 a very few days, i. not zero days, when not proceeding with the  
4 change-out would lengthen that course of action --

5 Q It was a critical path approach?

6 A Right.

7 Q You started your engineering for the contingency  
8 and when you got ready to go for the Dresser valves, that was  
9 the time cut-off for Lonergan, is that it approximately?

10 A Yes. We went further thtn that. We ordered  
11 materials and we ordered valves, recognizing that maybe we would  
12 fix the problem with the Lonergan ones and have to salvage  
13 that material.

14 So I don't think, in the sense that we gave Lonergan a  
15 deadline to either have serviceable valves or demonstrate  
16 serviceability by this date or we turn our back on you as the  
17 approach we took, in that sense I didn't give him a deadline,  
18 but from a project excuse standpoint, the deadline was  
19 additional delay of everything to take the alternative route.

20 Q Going back to the subject we were discussing this  
21 morning, you related a conversation that you had on Friday  
22 morning, March 30, with Joe Hendry concerning the possibility  
23 of an evacuation advisory. Did you have any conversations on  
24 that subject on that morning with anyone from the state of  
25 Pennsylvania or any state agencies?

1           A           I didn't. I want to clarify. I cannot remember if  
2 Chairman Hendry told me at that time that he had made the  
3 recommendation or they were planning on making the recommenda-  
4 tion. I am fuzzy on that.

5           Q           I understand that neither -- that none of the tech  
6 spec mandated review committee's -- the PORC, the GRC or the  
7 CORB report to you -- those are all committees that report to  
8 people within the operating company hierarchy, is that correct?

9           A           That's correct.

10          Q           What is your relationship with those committees?  
11 I mean, you as vice president of GPU Service Company but also  
12 your organization. Does your organization review the minutes  
13 of any of those committees or regularly participate in the work  
14 of any of those committees?

15          A           Yes. Members of my committee -- members of my staff  
16 are members of the committee. For example, the chairman of the  
17 Three Mile Island GORB -- General Office Review Board -- which  
18 is not a mandated -- I guess maybe I will have to retreat on the  
19 basis of that -- since GORB is not mandated, the answer is  
20 none of the mandated ones do.

21                    But we do have and have continued to maintain the function-  
22 ing of the general office review board.

23                    The chairman of that is a member of my staff. One of the  
24 regular members is a member of my staff. One of the consult-  
25 ing members, I guess under his contract he was consulting to



1 Herman Dieckamp, but in practice he worked directly with me a  
2 great share of the time -- so that I had, through them, a lot  
3 of visability to general safety issues.

4 There was, in fact, a third member of my staff that was a  
5 regular member. That was Don Reppert, who was the audit  
6 subcommittee chairman on the GORB. So I had a lot of awareness  
7 of plant problems and plant concerns from that as well as from  
8 routine discussions with Herbein as to where his problem areas  
9 were and also from the activities of the Nuclear Management  
10 Review Cpmmittee.

11 I am not sure just where you people go with this thought  
12 but it does seem to me that this is an example of where the  
13 company clearly does more than the minimum requirement, so  
14 to speak, and involves its management in a meaningful way  
15 above and beyond what are written in the technical specifica-  
16 tions.

17 Q You are speaking specifically of the fact that even  
18 though the GORB is not mandated by the tech specs for Unit 2,  
19 that you kept it and applied it to Unit 2 as another layer of  
20 management review?

21 A As well as Nuclear Management Review Committee.

22 Q And the Nuclear Management Review Committee, is  
23 that a committee that holds approximately annual management  
24 review sessions at each unit?

25 A Yes. And in order to have those as productive as

1 possible, they were also kept abreast of all correspondence  
2 between the company and the NRC.

3 We received from Met Ed summaries and identification of  
4 those correspondence, and copies of ones that were felt  
5 particularly significant for safety issues.

6 Q Mr. Arnold, you were quoted in yesterday's New  
7 York Times -- whether accurately or not -- as having told the  
8 reporter in substance that you felt that we now had a good  
9 basis or some good basis for evaluating why the accident  
10 happened, what it means to us concerning the likelihood of  
11 other accidents and what changes are required.

12 I would like to ask you to share your thoughts with us on  
13 each of these three subjects.

14 First, your thoughts about why the accident happened.

15 A I think there are two primary components, I guess,  
16 to the "why." One is that in the course of doing small break  
17 lock analysis, there either was not done -- or certainly was  
18 not sufficient focus placed upon the results if it was done --  
19 an analysis of a small break in the steam space of the  
20 pressurizer.

21 I am not aware of the results of any analysis of that  
22 particular accident for B&W units. In a more general sense,  
23 I think there has been a preoccupation with performing safety  
24 analysis on worst-case scenarios that led to a general  
25 uncoupling between the operators and those safety analyses as

1 as to their value in helping many to understand the plant.  
2 They represented a sequence that was so unlikely in his mind,  
3 and I think properly judged to be unlikely, that the behavior  
4 of the plant for those postulated circumstances were not what  
5 he would expect to see in the event he had a LOCA or one one  
6 of the other kinds of accidents that occurred.

7 I think this is probably particularly true of the LOCA. I  
8 think, between those two situations or those two historical  
9 facts, we developed a weak spot in the built off -- in the  
10 preparation of the operator through the procedures we provide  
11 him and the training we give him to recognize and respond to the  
12 circumstances with which our operators were faced with on the  
13 morning of March 28.

14 I guess I could expand on that and enlarge on it but if  
15 I were to try to get at what I considered the nub of the  
16 problem, I think it lies in those areas.

17 Q Second, let me ask you in your view what the  
18 implications are concerning the likelihood of other accidents,  
19 and maybe I should ask you particularly to address the question  
20 of how we ought to go about identifying what other kinds of  
21 weak spots there may be.

end RTL 22

23

24

25

1           A           I think one of the very encouraging things that comes  
2 out of the activity since the accident is the extent to which,  
3 from where I sit, at least, the industry and the regulators  
4 have been willing to say the accident is a basis for a very  
5 general review of the industry, the way we do things, and the  
6 approach we take. While I have some problems that the Lessons  
7 Learned Task Force only came out with lessons learned relative  
8 to the utility's performance and nothing relative to the NRC's  
9 way of doing things, I think, nevertheless there clearly has  
10 been on the part of the Commission Staff -- and I think there  
11 has also been on the part of the industry -- an attempt to be  
12 very objective in looking at the full scope of important safety  
13 issues in the industry.

14           I think a lot of very good things have come out of that.  
15 I think, for example, when one looks at the Lessons Learned  
16 Task Force, there is very little, if anything, that you can  
17 identify in that that is related to causes of the accident,  
18 in a sense.

19           Let me say that one looks at our accident and says how did  
20 it happen or what happened in the control room at that time?  
21 Very little of the lessons learned really are directed at that  
22 specifically. They are directed, I think, at the two aspects  
23 of our prior approach that I mentioned before, and they are  
24 addressed at a whole range of related issues, issues that we  
25 have relooked at or looked at with fresh insight as a result

jtf 2

1 of our review of the accident and the industry has done that  
2 and the NRC has done that.

3 Q You are saying, in essence, the accident galvanized  
4 people to look for other soft spots, among other things?

5 A I think so. While a lot of things have been  
6 identified, when accomplished, they will lead to more reliable  
7 operation from a safety standpoint and greater capability to  
8 recognize the extent of damage if an accident happens and to  
9 control that.

10 We haven't seen come out of that review an oversight that  
11 I would consider to be comparable to the oversight of the  
12 steam break LOCA. A lot of very, very competent investigation,  
13 I think, has been done into the technical basis for the plant  
14 designs and the plant operating procedures. That's not to say  
15 that we may not still find some of those kinds of problems.  
16 Perhaps we will find that the Westinghouse letter issued 10 days  
17 or so ago relative to qualification of non-safety equipment for  
18 the environment in the event of a steam break in certain  
19 locations may be an equivalent situation, I don't know, but  
20 we haven't -- with all of the new attitude that has been  
21 developed, we haven't identified a lot of other soft spots.  
22 We identified places where the differences can be improved, where  
23 they can be increased in depth, you can do more of what we have  
24 been doing better, accelerate some of the things that many of  
25 us already had under way. For example, we had under way within

jtf 3 1 our organization, within our company, an organizational approach  
2 that we have taken since the accident or put into place since  
3 the accident, so there has been the acceleration of some of  
4 these kinds of things. I think the fact that we had an accident  
5 now will cause the whole industry to take a much more skeptical  
6 view of arguments about why something is okay for the short  
7 time or why something probably isn't as big a problem as people  
8 might think it is.

9 It has given us a better perspective in which to view  
10 future safety problems.

11 Q And in your view, what are some of the major changes  
12 or changes that you think are required or that one would hope  
13 for or look for?

14 A I guess I would focus on two areas. The first one  
15 is the display of information and the availability of information  
16 about the plant to the operators. I think that is clearly an  
17 area that we can and need to improve.

18 The rest of the items that I think are first order importance  
19 can generally be gathered, I believe, in training of the  
20 operators, related to training of the operators, the additional  
21 analysis, the approach to utilizing analysis for training, the  
22 education of our operators in heat transfer, thermal dynamics,  
23 plant performance for various accident scenarios, the provision  
24 of readily accessible in the sense of readily available  
25 appropriate procedures and then accessing the appropriate

jtf 4 1 procedures for the operators, the training of the operators  
2 in the conduct of operations on the shift in the broadest  
3 context.

4 So I think those are what come out from an introspection  
5 standpoint, or let's look at ourselves. I think what also  
6 comes out as an item as far as what we need to do is, some way  
7 or other, we have got to be able to assist the public in having  
8 an understanding of the risk associated with nuclear power and  
9 an understanding that in the context of the risk that exists  
10 relative to the non-utilization of nuclear energy. I think  
11 that is probably the tougher one.

12 Q Mr. Arnold, thank you very much for your time and  
13 your cooperation. We appreciate it very much.

e.t. #21 14 (Whereupon, at 4:50 p.m., the hearing was concluded.)  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24