

Larry Vandenberg

NUCLEAR REGULATORY COMMISSION

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IN THE MATTER OF:

THREE MILE ISLAND

SPECIAL INQUIRY

INTERVIEW OF STEVEN VARGA

PART II

Place - Bethesda, Maryland

Date - Wednesday, 15 August 1979

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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: SPECIAL INQUIRY
THREE MILE ISLAND :
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INTERVIEW OF STEVEN VARGA

Room 426  
Arlington Road Building  
6935 Arlington Road  
Bethesda, Maryland

Wednesday, 15 August 1979  
10:45 a.m.

BEFORE:

SPECIAL INQUIRY GROUP:

FRED G. FOLSOM  
FRED J. HEBDON  
R. LAWRENCE VANDENBERG  
WAYNE LANNING

AND:

MARJORIE NORDLINGER  
Office of General Counsel, Nuclear Regulatory Commission

## P R O C E E D I N G S

(10:45 a.m.)

1  
2  
3 MR. HEBDON: Would you raise your right hand, please.

4 Do you swear and affirm the testimony you are about  
5 to give will be the truth, the whole truth and nothing but the  
6 truth, so help you God?

7 MR. VARGA: I do.

## EXAMINATION

8  
9 BY MR. HEBDON:

10 Q. Have you read and do you understand the witness  
11 notification I have just given to you?

12 A. Yes.

13 Q. Do you have any questions or comments?

14 A. No.

15 Q. Would you please state your name?

16 A. Steven Varga.

17 Q. What is your current occupation?

18 A. I am employed by the Nuclear Regulatory Commission  
19 in the Division of Project Management.

20 Q. What is your current position?

21 A. I am Acting Assistant Director for Light Water  
22 Reactors.

23 Q. I would like to turn the questioning over to  
24 Mr. Vandenberg, who has some questions he wants to ask you.

1 BY MR. VANDENBERG:

2 Q The questions I have deal with the preoperational  
3 and startup test program for TMI 2 and NRR procedures about  
4 that in general.

5 A First, what documents contain the preop and startup  
6 tests that NRC required for TMI 2?

7 A Well, there is a regulatory guide that is fairly  
8 extensive, and the Standard Review Plan also addresses it.  
9 And I don't know if there is other formalized documents. I  
10 think there are also ANSI standards, the industry standards  
11 that are referenced in some way or another in some of the  
12 regulatory documents as well.

13 Q Now, are all of those items specifically required  
14 of TMI 2 or is it just things that are in the license itself?

15 A Well, the preoperational testing aren't specifically  
16 in the license. There are requirements that they have to  
17 meet, and the I&E monitors their performance of preoperational  
18 testing, and prior to the issuance of the license they give  
19 us a clearance that all of those have been satisfactorily  
20 completed.

21 Q There is no single document that contains a full  
22 list of the preoperational tests?

23 A There may be. There probably is. I just don't  
24 know the specific document. I&E certainly must use something  
25 to measure it against, and I'm sure our regulatory guides



1 and the Standard Review Plan must have it. I'm not specifically  
2 aware of all the details.

3 Q How about for the startup tests? Is there a single  
4 document that lists all of the startup tests that TMI 2 was  
5 required to perform?

6 A I think that is when we discuss the modes, the  
7 various modes of operation. There are requirements, and I  
8 think in these similar document that I mentioned, Standard  
9 Review Plans and regulatory guides, and in the technical  
10 specifications they outline and delineate the various modes,  
11 what has to be completed prior to, from mode one to mode two,  
12 and to mode three, and that sort, or vice versa, mode six to  
13 mode one.

14 Q Did the licensee ever state a schedule for completing  
15 the preop and startup test program?

16 A Well, his schedule is controlled more or less by  
17 the issuance of the operating license. He has a schedule and  
18 I have seen various schedules that have been discussed, and I  
19 have forgotten the exact format or the exact document that I  
20 saw. But he cannot get his operating license unless all of  
21 those tests have been completed.

22 So occasionally, and I'm sure often, probably, his  
23 schedule that he has predicted probably has been changed,  
24 depending upon what problems he arrived at or experienced, but  
25 that his preoperational testing must be completed prior to his

1 receiving an operating license. There may be occasions, and  
2 there may have been in this one -- I can't recall -- where  
3 certain preop tests may not have been completed, but they were  
4 called out as conditions in the license, that this preop  
5 test would have to be done or this particular test would have  
6 to be done before a certain time period or before another  
7 certain reactor was received into a certain mode.

8 BY MR. LANNING:

9 Q Would you distinguish the difference between  
10 preoperational tests and startup tests?

11 A Well, preoperational testing is required of all of  
12 the systems for indicating compliance, that the as-built  
13 performance of the system meets the design performance, and  
14 are required to be performed prior to any license and prior to  
15 any fuel in the reactor.

16 Startup tests are those tests required after he has  
17 received the license and the reactor is fueled.

18 BY MR. VANDENBERG:

19 Q Do you know of any schedule the license had for  
20 completing the startup tests? That is, after fuel was loaded.

21 A The tech specs would delineate those startup tests.  
22 I don't know what the specific numbers were or what the specific  
23 schedule was. But he has certain startup tests that he has  
24 to perform prior to initial criticality and that sort of thing.

25 Q Do the tech specs contain any time schedule for

1 completing the startup tests?

2 A. I don't think the tech specs require a particular  
3 time schedule, but rather, a particular event, I think. But  
4 in some of the conditions for the license, if a test -- I  
5 don't know specifically on TMI, but I recall that there would  
6 be some instances where a specific test had to be performed  
7 by a certain time. I think it varies depending upon what the  
8 nature of the test is and its impact upon the plant operation.

9 Q. So there were some items?

10 A. I think, but I can't recall on TMI, but there may  
11 have been.

12 Q. The monthly operating reports show a forecast date  
13 for commercial operation. How does that forecast date relate  
14 to completion of the required test program?

15 A. I don't recall the commercial operation having a  
16 specific regulatory connection except in one or two instances.  
17 I think in-service testing is the only thing that comes to  
18 mind which has in it commercial operation. Commercial opera-  
19 tion is normally, in my view, a contractual operation between  
20 the vendor and the utility that requires so many hours of  
21 warranty testing and that sort of thing.

22 It is also, I think, associated with his financial  
23 arrangements or when he can start gaining some sort of tax  
24 benefits. But as far as a regulatory requirement, I don't  
25 think that commercial operation plays a very great role at all.

1 Q Do you think it plays any role at all?

2 A The only one that I can recall is the one on  
3 in-service testing, where I think the words in the regulatory  
4 guide, or at least the draft -- it may have been taken out; I  
5 can't recall. But the draft had some discussion about commer-  
6 cial operations, certain things being performed prior to  
7 commercial operation, which has given some difficulty because  
8 commercial operation is a highly, in my view, uncertain date  
9 And depending upon circumstances that are not safety-related  
10 at all.

11 Q That was a draft of which reg guide; do you recall?

12 A I can't recall. It was in-service testing, as I  
13 recall.

14 Q From your vantage point, Steve, who were the persons  
15 with authority to establish the TMI 2 test schedule, parti-  
16 cularly startup operations or startup testing?

17 A Authority to establish it?

18 Q Yes.

19 A Well, I guess the utility establishes his schedule.  
20 I'm not sure that regulatory -- except that certain tests  
21 prior to certain events taking place, I'm not sure the regu-  
22 latory staff has much input there or does much review.

23 Q All right. How about among the different contractors  
24 and licensee groups. Do you know which groups were responsible  
25 primarily for establishing the startup test schedule?

1           A.     I'm afraid I don't know much about startup test  
2 schedules, except that the utility must somehow work that out.

3           Q.     Did you ever learn of any indications that the  
4 preoperational or the startup test programs for TMI 2 were  
5 subject to schedule pressures?

6           A.     I can't speak for the utility's pressures on his  
7 own people. I don't recall of any schedule pressures on the  
8 regulatory staff for startup or operational tests, expediting  
9 those tests. I don't know of any instances.

10          Q.     Did the licensee express any rush to get the safety  
11 relief valves replaced once the problem was identified?

12          A.     I'm not sure I understand your question. Did he  
13 express to us? Would you phrase your question again? I don't  
14 understand it.

15          Q.     Did you ever hear of any indication or expression  
16 by the licensee or B&W or Burns & Rowe and others involved  
17 that there was a rush to get those valves replaced so they  
18 could maintain their startup test schedule or for any other  
19 reason?

20          A.     There may have been. I'm not aware of that. It  
21 wouldn't surprise me that they would rush to get them replaced.  
22 The plant is an operational plant and the longer it's not  
23 operating, I guess the worse it is for the utility. But I  
24 don't recall. And again, I don't know if the utility did.  
25 But from a regulatory standpoint, I don't recall any rush.



1 If I can interpret your question in this way, that, was there  
2 pressure exerted on the staff by the utility to review and  
3 approve it quickly, if that is your question, I don't recall  
4 of any. There well may have been.

5 The utility generally is anxious. When he is at a  
6 certain point, he is anxious to move ahead. But if the thrust  
7 of your question is, did I discern any pressure to expedite  
8 the review, with the feeling that perhaps we may have been  
9 pressured into some expedited review, I don't recall any such  
10 pressure.

11 Q How would you characterize the quality or the margin  
12 by which TMI 2 passed its startup tests?

13 A I can't answer that, just because I don't know. I  
14 didn't focus on the startup testing or the degree of compliance  
15 or the problems that they ran into.

16 BY MR. HEBDON:

17 Q In the course of your review, do you look at the  
18 actual results from the startup tests? Do you see the actual  
19 results that they develop?

20 A I think they do. I think they transmit the test  
21 results, but I'm not certain.

22 Q To whom?

23 A I&E.

24 Q To I&E?

25 A Yes.



1 Q But are they reviewed by NRR?

2 A I don't know.

3 MR. HEBDON: Thank you.

4 BY MR. VANDENBERG:

5 Q Did you ever determine why the licensee completed  
6 or nearly completed its startup test program on December 30th,  
7 as opposed to, say, completing it the following January?

8 A You mean December 30th as opposed to January 1?

9 Q Yes.

10 A No. State your question again?

11 Q The licensee completed, or at least nearly completed,  
12 their startup test program by the end of December, and I'm  
13 wondering if you knew of any reason why they completed it on  
14 that date, as opposed to letting it go until January.

15 A No, I don't know.

16 Q How and what was the extent of coordination between  
17 you and other people in NRR and in the I&E inspectors regarding  
18 the quality of the completed test and the startup test program?

19 A There is none that I know of specifically. Whether  
20 there is informal contacts, there may be; but I am not aware  
21 of any formalized procedure other than I&E reviewing the  
22 startup test programs, and if they have problems, then alerting  
23 us to those, which has happened. If they have a specific  
24 problem with a test that requires some evaluation on the  
25 part of NRR, they then, by either a transfer of lead

1 responsibility or discussion, resolve those problems and get  
2 input.

3 But if I&E reviews the startup test program and it  
4 is satisfactory, unless there is some informal mechanism --  
5 I don't think there is a formal mechanism to that, to the  
6 best of my knowledge.

7 Q. Do you know of any instances where a licensee  
8 attempted to speed up or delay completion of their test  
9 program?

10 A. There have been instances where test programs have  
11 been delayed. To the best of my knowledge, they had to do with  
12 delays in the completion of the construction or delays in  
13 equipment. To my knowledge, other than those practical  
14 reasons, I know of no reasons why delayed or deferred speedup --  
15 I know of no specific reasons. I would assume that the  
16 applicant was anxious, wherever he tried to expedite, was  
17 anxious to complete his plant.

18 Q. You can't think of any specific instances where a  
19 licensee was trying to speed up their test program?

20 A. I think in general he is trying to speed up his  
21 test program. I think he is trying to do that in general.  
22 Now, whether he was trying to speed it up because he had a  
23 particular deadline -- as a hypothetical example, we in the  
24 construction permit, in the permit for the construction of  
25 the plant, there is a date for the completion of the

1 construction, whereas if the applicant is not to meet that,  
2 even though we may be under the licensing review, he is bound  
3 to, 30 days before that date expires, he is bound to come in  
4 here for reasons for delay.

5 So I would suggest that oftentimes a utility, for  
6 whatever reason, would like to speed up his test program and  
7 complete his plant so he doesn't have to go through that  
8 problem of informing us and requesting delay in the completion  
9 of his construction, which requires an amendment to his  
10 construction permit.

11 So I am aware that that could happen, but specifically,  
12 other than those kinds of reasons, I don't know.

13 I don't know if I have answered the thrust of your  
14 question or not.

15 Q. You have.

16 Do you believe it is possible for a licensee to rush  
17 their test program to the point of compromising safety without  
18 the knowledge of NRC?

19 A. Oh, I would think so. My personal opinion is, from  
20 considerable experience in the field, is that if there was a  
21 deliberate attempt to mask or to deceive or to dissemble in  
22 any way, I would think it is possible. The tests are numerous,  
23 detailed, require significant manpower, and in my view it is  
24 very difficult for a one-to-one correlation from NRC onto those  
25 tests. So it would be possible. I can't conceive of why he

1 would want to do that.

2 BY MR. FOLSOM:

3 Q May I ask a couple of questions?

4 We speak of Met Ed as "he." Who would the Commission  
5 be dealing with by name with respect to the issuance of the  
6 operator's license and the startup time?

7 A Well, the operator license is issued and it is  
8 issued -- I think Mr. Herbein was the officer at the utility.  
9 He is the vice president with whom most of the management  
10 discussions took place. There were several other contacts  
11 and we have those in our list of utilities. If you have our  
12 roster of utilities, it outlines the responsible management  
13 official and then the technical contact, the licensing contact,  
14 and then the lawyers are also involved. And we had a service  
15 list that delineates those, and we provide those so that the  
16 license is issued by Mr. Denton to the company, and I think  
17 it is addressed to the company, but with the attention to  
18 whoever the responsible official is. I think it was  
19 Mr. Herbein, but it may have been the president. But that is  
20 the "he," that is the utility.

21 Now, we have other contacts that we deal with on a  
22 day by day basis, and I have forgotten the gentleman's name  
23 for Three Mile Island 2 --I should know it; I've forgotten it --  
24 that we dealt with in the licensing arena, who sets up meetings  
25 and interfaces with us.

1           But oftentimes Mr. Herbein would attend the meetings  
2 we had here.

3           BY MR. VANDENBERG:

4           Q     Steve, do operating licenses in general or TMI 2's  
5 OL in particular stipulate that certain test items must be  
6 completed within an allotted time frame?

7           A     Test items? I can't recall. There were several  
8 conditions on the TMI 2 license, numerous conditions which  
9 had associated with it various completion dates. I think that  
10 on some of those items there were instances where not only was  
11 the design to be implemented and modified as approved and the  
12 test results had to also be completed in that sense, where  
13 there were specific things culled out. And I can't recall  
14 specifically, but I think at Three Mile Island 2 there were  
15 some instances where in the license it addressed as part of  
16 the overall, the testing to be completed as well.

17           But in general, the startup tests, the license  
18 discusses modes, but I don't think discusses the specific  
19 date when these tests are to be completed.

20           BY MR. HEBDON:

21           Q     When time is included as a factor for when a test  
22 may be done, what you're saying, then, as I understand it, is  
23 that that time is tied to some mode of operation? In other  
24 words, this test must be completed within six months following  
25 mode one operation or mode four or whatever, rather than



1 saying, this test must be finished by June 1st.

2 A Yes, it is tied to an event or tied to prior to  
3 reaching such a plateau. In that sense, yes. But there may  
4 be, within a particular mode, there may be a date tied into it  
5 as no later than for certain instances. And I'm trying to  
6 think of a specific condition in the TMI 2 license. There  
7 were some hardware changes that had to be made, and the hard-  
8 ware changes had to be made and the test results run and the  
9 tests completed prior to a mode, I guess, rather than a specific  
10 date. I think it was prior to a mode, as I recall.

11 MR. HEBDON: Thank you.

12 BY MR. VANDENBERG:

13 Q Steve, do you know of any meeting that was held,  
14 whether or not you attended, where the license test schedule  
15 was discussed for the purpose of trying to speed it up or put  
16 pressure on completion?

17 A I think there were some meetings with the project  
18 manager that I am aware of that had to do with the overall  
19 progress of where we were in the license review, and when it  
20 appeared that we would be ready with a recommendation for an  
21 operating license, that there were so many open items that had  
22 to be completed and when, applicant, are you going to get the  
23 responses in to these questions.

24 Associated with that discussion was a turn to, all  
25 right, now let's see where you are on your preoperational



1 testing and let's see how your schedule is coming on there,  
2 to be sure that that schedule is consistent. If you want to  
3 reach this end point, be sure you pay the proper attention  
4 to your preoperational test program as well. So in that  
5 sense, I'm sure there were meetings.

6 Q. Is there one in particular you can remember?

7 A. No. I normally did not attend the detailed level  
8 meetings. But there are meeting summaries available on all  
9 of these meetings that were held, and I'm sure that discussions  
10 like that took place, because that is part of the scheduling  
11 activity that we do in terms of allocating our resources.

12 BY MR. LANNING:

13 Q. Who within NRC composes the operating license per se  
14 for a plant, writes it?

15 A. That is done in the project management in the  
16 various branches.

17 Q. Where does project management get its input for  
18 outstanding license issues, for example, the requirement that  
19 is required to complete the various modes, the test procedures?  
20  
21  
22  
23  
24  
25

1 A As I say, I'm not sure the test procedures are  
2 specifically called out in the license, but they are called  
3 out in the Tech Specs, which are part of the license. Now,  
4 those all come from the standard technical specification  
5 group, which is one of the people that put together the  
6 specific Tech Specs.

7 Q This is the license for TMI-2. License number  
8 DPR-73. I want you to take a look at Attachment 2 to the  
9 Operating License and you will see a list of requirements  
10 there.

11 MR. FOLSOM: Do you want to identify that as an  
12 exhibit or for identification purposes?

13 MR. LANNING: I thought I had. It is the license  
14 numbered DPR-73, Docket Number 50-320, Three Mile Island  
15 Nuclear Station Unit 2 Facility Operating License. And it  
16 is dated February the 8th, 1978.

17 MR. FOLSOM: Fine, that gets us there.

18 BY MR. LANNING:

19 Q Maybe you should look at this. The first part is  
20 the license, as I understand it.

21 A Right.

22 Q And then there is an attachment to the license.

23 A Right.

24 Q And then Attachment 1 is Technical Specifications.

25 A Right.

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1 Q Now, with regard to Attachment 2, there is a list.  
2 It is titled Preoperational Test, Startup Test, other items  
3 which must be completed. There is a number of test  
4 procedures identified in those few pages in the attachment.

5 A Right.

6 Q Where does the project management get their input  
7 to those items?

8 A I&E. You see, this is normally, as I said, as a  
9 condition in the license. Ideally, one would hope that all  
10 of the preoperational testing would be done, that would be  
11 the preferable way to run it, but we recognize that there  
12 are certain problems in procuring material, procuring  
13 equipment, and part of our evaluation seeks to see the ways  
14 to satisfy the safety requirement reasonably, and yet at the  
15 same time to proceed with the activities underway.

16 So rather than say that no license will issue, it makes  
17 reasonable sense upon the review that these items could be  
18 completed prior to operational mode four, which is not  
19 shutdown, wherein the reactor is still sub-critical with all  
20 of the rods in and these are required to be completed prior  
21 to moving from those.

22 But, normally -- and you can see licenses which don't  
23 have operational, many preoperational testings required  
24 because there was sufficient time beforehand to complete  
25 them all, wherefore, whatever reasons. But, that is not an

apHEE 1 unusual practice. But we get this from I&E.

2 Q In your capacity as branch chief, how many licenses  
3 have you issued?

4 A Operator licenses?

5 Q Yes.

6 A Just this one.

7 Q This is the only one?

8 A Yes.

9 Q Would you describe the process that NRC implements  
10 for a change to the license.

11 A Amendment to the license?

12 Q Well, let's start with amendments, yes.

13 A Well, if there is some particular request, or if we  
14 see something that needs to be done, there is a safety  
15 evaluation prepared about that particular issue. That  
16 safety evaluation discusses the issue, what the conclusions  
17 were, what the changes should be to the license, including  
18 whatever Tech Spec changes have to be performed, have to be  
19 accomplished, and includes the Tech Specs.

20 That package then is put into the formalized amendment  
21 format, which is a standard format that is used, that  
22 indicates what the license is, what particular sections are  
23 being changed, it indicates the safety evaluation, it makes  
24 a significant hazards consideration which is whether or not  
25 the hearing should be -- there should be an opportunity for

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1 nearing if it is a significant hazard. If it is, certain  
2 events take place. If it is not, we proceed then to prepare  
3 the package for OELD's concurrence, and then the amendment  
4 is issued.

5 MR. HEBDON: Could I interrupt for just a second?  
6 Could we go off the record for a moment?

7 (Discussion off the record.)

8 MR. HEBDON: Let's go back on the record.

9 BY MR. LANNING:

10 Q Besides the license amendment, are there other ways  
11 to change the requirements of a license? Or to grant relief  
12 from a license?

13 A Well, there are exemptions that are granted from  
14 certain regulatory requirements, which are then included in  
15 the safety evaluation. And I assume are included in the  
16 license itself. But once a license is issued, I am not  
17 aware of other mechanisms other than amendment. Even Tech  
18 Spec changes require an amendment to the license, so I am  
19 not aware of other ways to change the license. I'm a little  
20 bit fuzzy on exemptions because there are certain  
21 regulations that have certain provisions for exemptions that  
22 can be provided or can be granted by the Director, so I  
23 could see a particular regulation, for instance, applying to  
24 some reactors that are already licenses, and that it might  
25 take a letter perhaps, granting the exemption and it might

upHEE 1 not specifically appear in the license, although that would  
2 appear untidy to me. But that might happen.

3 Q You have been reviewing a document the title of  
4 which is Safety Evaluation by the Office of Nuclear Reactor  
5 Regulation Support Amendment Number 1 to this already  
6 operating license number DPR-73. It is dated March 3,  
7 1978. At the bottom of the first page there, there is a  
8 sentence addressing something to do with the fact of the  
9 interest of minimizing the delays in licensing process.

10 A Yes.

11 Q Do you recall under what circumstances those delays  
12 referred to?

13 A Well, from the language in the paper, that says in  
14 the interest of minimizing delays, the licensee proposes  
15 that a waiver of the requirements of the Technical  
16 Specifications be granted to permit performance of  
17 hydrostatic tests. I am assuming that that means -- and I  
18 would read it to mean -- that the applicant is anxious to  
19 keep his work on schedule and that he is asking for certain  
20 deletions or waivers to be granted in order for him to keep  
21 his schedule.

22 Q So the NRC approved that amendment primarily for  
23 the purpose of minimizing delay?

24 A I didn't say that.

25 Q Let me ask the question differently. The



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1 amendment -- what in your opinion is the basis for that  
2 amendment?

3 A It is indicated in the safe evaluation.

4 Q In the Metropolitan letter of February 24th, '78,  
5 directed to Director of Nuclear Reactor Regulation,  
6 attention R.W. Reed, Chief -- that is from J.G. Herbein,  
7 which, in effect, is the letter requesting Licensing  
8 Amendment Request Number 1.

9 In that letter, there are reasoning for amendment  
10 request. And I'm quoting, This amendment is necessary to  
11 avoid delays after heatup of primary system that could  
12 result from coolant leaking through new pressure boundaries  
13 that have not yet been hydrostatically tested.

14 A You see, he is anticipating future delays, not  
15 delay for that moment. He is saying that if you do it now  
16 it is going to save me time because if I do it later and I  
17 find I have a leak, I'm going to be in worse problem because  
18 it's going to take me longer to fix it. He doesn't want to  
19 do the test now because it is going to delay him. He says  
20 that it would be more expeditious for him to do it now and  
21 correct his problems, rather than wait til later, which  
22 would be a little more difficult because of the status of  
23 the system.

24 Q But as I understand it, these requirements for this  
25 certain testing of the equipment were to be done when they

pHEE 1 were in operational mode 4.

2 A Right.

3 Q And March 3rd, I don't think they had completed  
4 mode 6 or 5 by that time?

5 A Right. And the impact being that no later than  
6 mode 4 do you want that done, and as the safe evaluation I  
7 think indicates, I just glanced at the document in the few  
8 minutes that we had, indicates that the acceptableness of  
9 the test that the applicant proposed met our requirements.  
10 And we saw no reason why the applicant's request couldn't be  
11 granted from a safety standpoint.

12 BY MR. HEBDON:

13 Q As I understand it, what you're saying is that your  
14 perception of what the applicant has requested is that he be  
15 allowed to do the test earlier, not later?

16 A That's right.

17 Q And the reason he wanted to do it earlier was in  
18 order to avoid potential delays that might exist or might  
19 develop if he were to do it at a later date.

20 A Yes.

21 MR. HEBDON: Thank you.

22 BY MR. LANNING:

23 Q I want to return back to the question of  
24 exemptions. You had mentioned earlier about in-service  
25 inspections.

pHEE

1 A Right.

2 Q And how it relates to commercial operation.

3 A Well, I mentioned that I know there is some  
4 discussion about commercial operation, but I've forgotten  
5 the nexus, but there is some discussion. I don't recall  
6 what it is, specifically.

7 Q What does commercial operation really mean to you?

8 A As I understand, commercial operation is when the  
9 utility has arrived at a point where he is now going to  
10 financially benefit, reap the benefits of the plant.

11 Q Which means what?

12 A He is now going to get the tax breaks and his  
13 depreciation will start, his whatever other financial  
14 benefits accrue to him as a result of having an operating  
15 facility, and that is in the financial understanding of  
16 it. It also means to me that he now has a responsibility  
17 for the plant and the vendor has essentially discharged his  
18 warranty obligations with whatever his contractual  
19 obligations were.

20 It is an interpretation that I have. There must be,  
21 perhaps a better definition, but that is my understanding of  
22 it as best I know.

23 Q To grant an exemption from a license does not  
24 require an amendment; is that true? Or is an exemption to  
25 the license require an amendment to the license?

pHEE

1           A     I don't know. That is what I mentioned earlier, is  
2 I think there may be instances where an exemption is granted  
3 and that amendment may not be forthcoming, and I am hazy on  
4 that point. I don't know what the specific requirements  
5 are.

6           BY MR. HEBDON:

7           Q     Is it your understanding that the normal practice  
8 is that an exemption is an amendment?

9           A     That is my understanding, is that if an exemption  
10 is given, it is reflected somehow in an amendment. If it  
11 isn't, we ought to do that.

12          Q     In a letter of April 21st, '78, to Metropolitan  
13 Edison Company, signed by Roger Boyd, Director of the  
14 Division of Project Management -- would you read that?

15           MR. HEBDON: We apologize for the quality of that  
16 copy.

17          BY MR. LANNING:

18          Q     The first few pages in front of that is what you've  
19 been looking at, which relates to that. Can you determine  
20 the purpose of that letter?

21          A     Yes. This was from the in-service valve testing, I  
22 think. In-service testing, I think for pumps and valves. I  
23 think, I can't read that first paragraph at all.

24           Yes, this is the one that -- I think, that after the  
25 license had been issued there was some requirement placed

..apHEE

1 because of the requirements delineated in one of the Regs  
 2 and that an exemption is given if requested, and if findings  
 3 are made that an exemption can be granted. And this, I  
 4 think, addresses that.

5 Q What specific requirements? The ASME code?

6 A Yes, I think ASME code Section 11, paragraph 5,  
 7 6(g) or whatever it is. I've forgotten what the paragraphs  
 8 were. Here it is. 50, 55(a)(g)(b)(1), which refers, I  
 9 think, to the various ASME code Section 11 for in-service  
 10 testing of pumps and valves.

11 Q Is it your understanding that that is also covered  
 12 by Technical Specification requirements?

13 A Yes.

14 Q Is it also your understanding that that letter  
 15 grants relief from certain in-service inspection  
 16 requirements?

17 A Yes. It grants relief for a certain period of  
 18 time, right.

19 Q Was that relief granted to an exemption or an  
 20 amendment?

21 A I can't recall. I recall the letter. It is  
 22 apparently that this letter was the basis upon which the  
 23 granting of the relief was made and it didn't result in an  
 24 amendment. I think the practice was to take care of it by a  
 25 letter from the division of project management or the

APHEE

1 appropriate operating division, like operating reactors.

2 But I am looking for the Tech Specs. If the Tech Specs  
3 were changed, why weren't the Tech Spec changes -- oh,  
4 because it was granted in the letter itself. I assume there  
5 was no amendment. I think that was in procedure.

6 Q After a license is issued, how are changes to the  
7 FSAR handled or reviewed?

8 A That is a good question. That has arisen from time  
9 to time, that if the applicant does change, or something  
10 happens that he wants to have changed and it affects the  
11 principal engineering and architectural criteria, I assume  
12 that he submits to us -- I think he submits to us whatever  
13 the appropriate paperwork and documentation outlining the  
14 particular issue and the concern. We evaluate it and if it  
15 requires changes to his Technical Specifications those are  
16 made by amendment.

17 Q How would these changes to the FSAR be communicated  
18 to the NRC?

19 A Well, most of the changes -- I don't recall changes  
20 specifically to the FSAR, except where there are license  
21 conditions, there are a certain set of licensed conditions  
22 which require design work. And then they submit us an  
23 amendment to their FSAR and we review it. And then it  
24 appears as a removal of the condition from the license.  
25 Most of the paperwork that is associated with changes after



..apHEE 1 a license have to do with changes to the Technical  
2 Specifications. They then propose or request a change to  
3 the Technical Specifications. That change is evaluated and  
4 a safe evaluation is written, conclusions are made, and if  
5 appropriate to be granted, then a license amendment is then  
6 issued, which indicates the changes in the Technical  
7 Specification, because the Tech Specs are part of the  
8 license.

9 I'm not aware -- and don't know -- what happens if there  
10 is a change or if it has happened, if there is a change in  
11 the design that didn't affect the Technical Specifications.  
12 I don't know what would happen. I would assume that he has  
13 responsibilities similar to the construction permit stage,  
14 where if it affects the principal engineering and  
15 architectural criteria and if it is an unreviewed safety  
16 question, then he has an obligation to inform us and then a  
17 finding is made. And if there is a Tech Spec change then  
18 the amendment is issued.

19 BY MR. HEBDON:

20 Q Is there any effort maintained to keep the FSAR and  
21 the Tech Specs consistent?

22 A There have been efforts in that direction. There  
23 have been significant discussions from time to time about  
24 keeping FSARs current. And the responsibilities that the  
25 applicant should have in keeping FSARS current. There was a

spHEE 1 fairly extensive discussion on a draft paper, draft Reg  
2 Guide, or some regulatory draft paper that was before the  
3 Ratchet Committee, that discussed the requirement of having  
4 all of the FSARs for all of the operating plants brought up  
5 -- to assure that they brought up to current as-built  
6 conditions.

7 Q What is the current status of that?

8 A I think that it went back, as I recall, there were  
9 comments given to that paper by the individual committee  
10 members and I think it is still under review. I've  
11 forgotten who the contact was on it. But I know, for  
12 instance, that Roger Boyd made extensive comments on the  
13 proposal, and it is still under review. I don't know where  
14 it is right now.

15 Q So then it would be safe to say that at the present  
16 time, at least, there is no systematic effort to ensure that  
17 FSARs are kept current?

18 A I don't know that. There may be in DOR. They have  
19 activities underway that I'm not aware of. I've related to  
20 you as much as I know.

21 MR. HEBDON: Thank you.

22 BY MR. LANNING:

23 Q The list of license conditions that appear in the  
24 Operating License, do you have a feeling for whether the  
25 number listed there is normal, excessive, less than usual

..apHEE 1 compared to other licenses?

2 A My guess -- it is somewhat greater than what I  
3 understand would be the average. As I say, I have not a  
4 great deal of experience, myself, in Operator Licenses. But  
5 from the number of conditions and the items, I would say it  
6 is not -- I don't think unusual, but I think it is somewhat  
7 more than the average, is my perception.

8 Q Is there any reason why only one Operating License  
9 has been issued by project managers in your branch?

10 A Well, we are mostly associated with CPs. And OLs  
11 are just now beginning to come in, and I have been Branch  
12 Chief there for about two years and this is the only one  
13 we've issued. We have several under review; we have many  
14 under review.

15 Q Is it correct that your branch still has  
16 responsibility for Three Mile Island 2?

17 A We transferred responsibility today.

18 Q What has been the time frame from the time it  
19 received its OL until it was transferred?

20 A I've forgotten what the date of the OL is, which  
21 was '77. I've forgotten what the date is.

22 Q 17 months, or thereabouts? If they received an  
23 Operating License in February '78?

24 A Well, from then til now.

25 Q Is that a normal period of time, which a plant

upHEE 1 would remain in the division of projects management after  
2 receiving their license?

3 A Well, I'm not sure that I know that there is a  
4 normal period of time. I believe it is too long.

5 Q What is the normal procedure?

6 A The normal procedure is to delineate, in a  
7 memorandum, to delineate the outstanding issues in license,  
8 identify the responsible organization to resolve, to review,  
9 and to technically resolve those issues, outline a schedule  
10 associated with each of those issues. This is an internal  
11 memorandum, now. It discusses in a synoptic way the status  
12 of the plant, the summary of the review, appends to it the  
13 safe evaluations, the various license amendments and the  
14 license itself and a rather elaborate concurrence chain then  
15 takes place with the project manager on the giving end and  
16 the project manager on the receiving end and the branch  
17 chief and the ADs and everyone involved. It is a rather  
18 elaborate and rather extensive document.

19 Q Have you attempted earlier to transfer this license  
20 to the division of operating reactors?

21 A Yes, we have several times. It is a matter of  
22 resource allocation.

23 Q Would you expand upon that, what you mean?  
24  
25

1           A.     The effort that it takes to set up and to receive an  
2 operating plant requires personnel in the new branch that it is  
3 going to requires the licensing assistants assignments, and it  
4 requires certain resources that the receiving branch has to have.  
5 And my perception is that there were some difficulties in having  
6 the appropriate personnel available.

7           Q.     Did it have anything to do with the number of out-  
8 standing items in the license?

9           A.     It could have had some difficulty with that, but it  
10 was decided early, as I recall, that as long as the delineation  
11 of the responsibility, the specific item evaluation, and the  
12 schedule was called out, that that would not be a stumbling  
13 block or an obstacle.

14           MR. HEBDON: Let's go off the record for a moment.

15                   (Discussion off the record.)

16           MR. HEBDON: Back on the record.

XXX

17           BY MR. LANNING:

18           Q.     We want to turn now to the question of technical quali-  
19 fications during a review of a plant. What part does the pro-  
20 ject manager contribute to determining the technical qualifica-  
21 tions of the applicant?

22           A.     He plays a role that is not explicitly defined any-  
23 where, but he does play a role. He probably interfaces the  
24 greatest number of times and interfaces the most with the  
25 applicant and his architect engineer, his vendor, and the staff

1 that the applicant himself has, and over a period of several  
2 years, forms a perception and a feeling for the technical quali-  
3 fications of the applicant.

4 There is also -- since you have asked me only about  
5 the project manager, I will stick to that -- but there is also,  
6 of course, input that he receives from others who have made  
7 evaluations from I&E who make their evaluations. If, for  
8 instance, the utility has had other operating plants, if it is  
9 an OL, the I&E also gives a perception of how they perform  
10 during the construction of the plant.

11 But the project manager's role is mainly in an over-  
12 all perception which leads him to concur in a statement that  
13 says that, with all of these other inputs that we find, that  
14 the applicant technically qualified, he has no numerical  
15 guidance, he has no checklist as such. Most of the project  
16 managers are knowledgeable about the design and operation of the  
17 plants, and with discussions internally with the staff, with the  
18 technical reviewers themselves, forms a rather detailed opinion  
19 of the technical qualities and qualifications of the applicant  
20 and his supporting contractors.

21 Q Where is this normally addressed? In the SER?

22 A It is addressed under technical qualifications. I  
23 have forgotten what the section is. And it is also addressed  
24 in the conclusions of the SER. There is a section, I think,  
25 on technical qualifications; that is Chapter 13 or 15, I have



1 forgotten.

2 Q What part does I&E contribute to determining the  
3 technical qualifications?

4 A They give -- I am not sure what the formalized role  
5 is -- but they give either informally or maybe by form, formal  
6 memorandum -- but that may not be correct. They give a per-  
7 ception or an opinion about the technical qualifications or the  
8 performance of the applicant if he has a plant in the field or  
9 if there have been other reasons why I&E had opportunity to  
10 interact.

11 For a new plant, even in the CP stage, I&E very early  
12 interacts with the applicant with a meeting at the applicant's  
13 home office with the senior members of the utility to establish  
14 that early a QA program is under way, even before we have under-  
15 gone much of a review, to be sure that whatever components he  
16 is purchasing has an approved and an acceptable QA program.  
17 And we get from the QA branch in NRC, get from I&E a report of  
18 that visit and the perceptions of the applicant's QA program  
19 and his implementation very early in the CP review.

20 And similar interfacing goes on by reports of inspec-  
21 tions which the project's manager gets, every report of inspec-  
22 tion that is performed by the I&E. Whether there is a specific  
23 document that says -- that addresses specifically their recom-  
24 mendation or perception of the technical qualifications of the  
25 applicant, I don't know.

1 Q Are you familiar with an NRC internal appeal process  
2 which is used to resolve technical differences between the  
3 licensing staff and the applicant?

4 A Yes.

5 Q Would you explain how that process works?

6 A In the acceptance review of the application, CP or OL,  
7 there is a standard paragraph that is inserted that explains to  
8 the utility that "we have accepted your application for a  
9 review and that we will be communicating within the terms of  
10 schedules and that sort of thing." And as the review progresses  
11 this paragraph goes on to say that "if you should run into some  
12 problem or disagreement with the staff, contact," I think it  
13 says, "division of project management and succeeding levels  
14 whenever you wish." And this can be an informal contact; it  
15 doesn't have to be very formalized.

16 I think the paragraph gives some indication of "pick  
17 up the phone and if you have a problem with the staff's require-  
18 ments, that can be appealed to upper management."

19 Q Is this process documented?

20 A Yes.

21 Q Where?

22 A I believe -- I think a sample letter is included in  
23 the project manager's handbook that has that paragraph in it.  
24 And I think one of the later revisions to one of the PMOPs --  
25 the project manager's operating procedures, which I think go

1 into the project manager's handbook -- addresses that letter,  
2 and specifically, the paragraph I just spoke about.

3 Q. What level of management does the appeal process start  
4 at?

5 A. It usually starts at the branch level and goes usu-  
6 ally something like this: that the applicant after responding  
7 to some questions outlines his case; he has a meeting with the  
8 staff, and the staff tries to persuade the applicant about the  
9 rightness of its views, and the applicant tries to persuade the  
10 staff on its views.

11 This continues perhaps for an iteration or two, where  
12 some attempt at compromise is usually attempted in these pro-  
13 ceedings. But fairly early, after about the second iteration,  
14 after another meeting with the staff where there has been per-  
15 haps one iteration, they then meet in the branch chief's office.  
16 And the branch chief then attempts to assess the staff and the  
17 applicant's positions and further suggests an acceptable com-  
18 promise.

19 If that is not successful, they then meet in the  
20 assistant director's office, but by that time they meet with  
21 the assistant director and the division director together. If  
22 the division director then cannot resolve the issue and calling  
23 in appropriate other division directors -- for instance, the  
24 division of project management and the division of site safety  
25 will meet -- and that is the level they will meet in. It has

1 happened many times. I have been involved in many of these  
2 appeal meetings.

3 If that is not resolved there, it then goes to the  
4 director of NRR -- in this case, Mr. Denton.

XXX

5 BY MR. HEBDON:

6 Q. In your opinion, what percentage of the issues that  
7 are referred to this appeal process end up being resolved in  
8 favor of the applicant's position, as opposed to in favor of  
9 the staff's position?

10 A. I don't know of any.

11 Q. If the applicant -- if I understand you, then, you're  
12 saying the applicant rarely wins?

13 A. The applicant rarely wins.

14 Q. Then why do they even bother to go through the appeal  
15 process?

16 A. I have often wondered.

17 MR. HEBDON: Thank you.

XXX

18 BY MR. LANNING:

19 Q. Do you recall of any appeal made by Met Ed during  
20 their license for Three Mile Island 2?

21 A. Yes. They appealed the safe shutdown position,  
22 safety-grade cold shutdown. Cold shutdown position, as I recall.

23 Q. Any others, or just the one?

24 A. There may have been others, but I can't recall any  
25 of the others.

1 Q Do you recall one concerning the steam outbreak?

2 A That is the cold shutdown, the safety-grade equipment.

3 Q I see.

XXX

4 BY MR. HEBDON:

5 Q Excuse me. Met Ed was required in the application  
6 for TMI-2 to meet a cold shutdown requirement?

7 A No. They mitigate the steamline break accident with  
8 safety-grade equipment.

9 Q So it was not a cold shutdown?

10 A Well, but you had to achieve -- no, you are correct:  
11 That proceeded the cold shutdown branch position. They had to  
12 achieve a hot standby condition; that is correct.

13 MR. HEBDON: Thank you.

XXX

14 BY MR. LANNING:

15 Q Would you comment on the effectiveness of the present  
16 organization of segregating division of project management from  
17 technical reviewers and as to the control which the project  
18 manager has over the project, the resolution of issues and such  
19 things?

20 A Ideally, the present system should work without any  
21 particular problems. The project manager, through the techni-  
22 cal review branches and the two technical reviewers, has the  
23 issues that the applicant has presented, have those issues  
24 evaluated. He calls meetings with the applicants and with the  
25 reviewers and has those issues resolved. His control, in that



1 sense, is, I believe, adequate.

2           The control that I feel he does not have and is lack-  
3 ing: He has no control over the technical content of the evalua-  
4 tion, particularly. He certainly can interject wherever his  
5 interest and persuasion leads him, and he can attempt to influ-  
6 ence wherever he can; but the responsibility for the technical  
7 evaluation rests with the technical branches. So, consequently,  
8 his control in the sense of the technical review is rather  
9 minimal.

10           Q     How are unresolved safety issues addressed at an SER?

11           A     They are addressed either as a specific issues high-  
12 lighted in the SER, or not addressed at all under the assumption  
13 that they have been resolved during the review. The SER doesn't  
14 outline every facet of the review; it doesn't outline everything  
15 that was reviewed and found acceptable. It summarizes, high-  
16 lights, the significant issues that arose that were more than  
17 the normal or more than the routine problems.

18                   As you know, SERs reference frequently previous  
19 reactors that have been reviewed of a similar design and simi-  
20 lar configuration, and the SERs rely fairly heavily on that  
21 background, and that there is a rather broad range of what  
22 specific issues are highlighted in the SERs.

23           Q     So, they would not necessarily list any unresolved  
24 safety --

25           A     They would resolve unresolved safety issues if they



1 have not been resolved. They would do that.

2 Q Is there any reason why this list of unresolved  
3 safety issues should not be addressed in the operating license?  
4 For example, once the safety issue is resolved, there should  
5 be some requirement for the applicant to meet a resolution?

6 A They are. If it is not resolved by the time of the  
7 issuance of an operating license, all unresolved issues, if we  
8 proceed with the license, should be outlined as a condition to  
9 the license.

10 Q How about generic safety issues, generic unresolved  
11 safety issues?

12 A Well, generic unresolved safety issues are addressed  
13 in the SER or in the supplement or in, usually, in the SER. In  
14 the TMI case, was addressed, I believe, as a part of the ACRS  
15 concerns.

16 Now, if you recall, the time frame of the generic  
17 issues, so-called "unresolved safety issues," have a rather  
18 long history. They predominantly started out as ACRS concerns;  
19 and in the ACRS letter for TMI-2, they outlined that these  
20 specific issues are applicable to TMI-2. And those issues were  
21 then resolved or discussed in the SER of what the resolution  
22 was.

23 Subsequent to that, there were these. The continued  
24 staff efforts and interaction with Congress and the various  
25 categorizations that took place of safety issues took place

1 after the license of TMI was issued. And I can't recall whether  
2 during some of the license proceedings after TMI, like the air-  
3 craft crash hearings that went on, I can't recall whether  
4 generic issues were discussed, but I seem to have a feeling that  
5 we addressed the categorization, the generic items that have  
6 been categorized or addressed in some manner, and I can't recall  
7 when.

8 But for TMI, at the stage of the license, the  
9 unresolved safety issues, or so-called "generic concerns," were  
10 those addressed in the ACRS letter.

11 Q Only the ACRS letter?

12 A At that time. But, as I say, subsequent to that, I  
13 seem to recall that there was some additional work. I may have  
14 it mixed up with another project. There was some additional  
15 work done with unresolved safety issues on TMI, but it may have  
16 been that TMI, as were the other operating reactors, would be  
17 taken care of in the procedures that the other operating  
18 reactors were going to follow.

19 Q What are the functions and what contributions do the  
20 Atomic Safety Licensing and Appeal Boards make from a stand-  
21 point of increased safety?

22 A Well, that is a broad question.

23 Q Well, let's start with what the functions are of the  
24 appeal boards.

25 A Well, as I understand the appeal boards -- and

1 probably counsel knows more about those than I do -- but the  
2 appeal board takes the initial decision that the licensing  
3 board has arrived at and reviews it, not necessarily because  
4 someone has specifically appealed to it, but I think just  
5 reviews it as a matter of course, I think.

6 And then it either concurs or makes whatever findings  
7 it feels are appropriate.

8 In the meantime, however, it has to react rather  
9 quickly because of an ASLB decision and has a certain specific  
10 schedule that has to be followed so that there is a certain  
11 period of time where the appeal board acts before the license  
12 is issued.

13 Q So, they review or hold hearings prior to issue of a  
14 license?

15 A Yes. The function of them, of the ASLB, holds hear-  
16 ings. Now, the appeal board may hold hearings, if they don't  
17 remand it to the licensing board. Rarely, they have done that.  
18 Mostly, they remand the issue to the licensing board and say to  
19 them, "we find such and such and we are remanding this to you,"  
20 which I understand means you would get new hearings started and  
21 call witnesses and do your thing.

22 And then the appeal board then reviews that again.

23 Q How do the decisions of the licensing board find their  
24 way back to the staff?

25 A Oh, the licensing boards provide an initial decision

1 that goes to all the parties, including the staff, and it goes  
2 to our counsel and to the project managers and, depending upon  
3 what that initial condition may say, either a license is issued  
4 with appropriate conditions as called out by the board or what-  
5 ever the initial decision says.

6 Q Do you know the scope of their review?

7 A Of the ASLB?

8 Q Yes.

9 A Well, as I understand it, they don't do a sui sponte  
10 review; they don't do another review of the plant. They review,  
11 I guess, what the staff has done. But that doesn't mean that  
12 they can't explore whatever area that they feel are necessary,  
13 and they do, as I can point out -- Dr. Jordan, in several  
14 instances.

15 So, they review the staff's work, the applicant's  
16 work, and whatever else they think is appropriate.

17 Q Do you see their role as a contributor to increased  
18 safety?

19 A Insofar as it imposes on the staff another -- not that  
20 it doesn't have enough -- but another pressure to do a good job  
21 and to search itself to areas that could be open to question and  
22 to be sure that it has resolved the issues satisfactorily.  
23 Insofar as that aspect of it goes, I think it serves a very  
24 useful function, particularly when issues are discussed and  
25 testimony is prepared and highlighted.

1           So, I think it is a very useful checkpoint for the  
2 staff. I myself am not aware, except in one or two instances,  
3 where issues not raised or discussed by the staff were raised  
4 by the board that resulted in some added assurance for safety.  
5 But that doesn't mean they don't. I just myself don't know.

XXX

6           BY MR. HEBDON:

7           Q     I would like to go on and ask you some questions con-  
8 cerning precursor events.

9           A     Precursor events?

10          Q     Events that occurred prior to the accident at TMI  
11 that might have provided some indication or some warning that  
12 that particular accident was going to occur.

13                     What was your position in the organization in January  
14 of 1978?

15          A     I was branch chief.

16          Q     How many people reported to you?

17          A     11.

18          Q     To whom did you report?

19          A     To Domenic Vassallo.

20          Q     Did Carl Stahle work for you in that particular time  
21 period?

22          A     Carl Stahle did work for me.

23                     MR. HEBDON: Can we go off the record for just a  
24 second?

25                     (Discussion off the record.)

1 HEBDON: Let's go back on the record.

2 For the purposes of the record, the questions and  
3 the discussion that we have just had on the licensing process,  
4 the intent of the questions was to get your perception of how  
5 the system worked, what various terms meant, what constituted  
6 amendment, what was an exemption, that type of thing, rather  
7 than trying to get a legal opinion, which obviously you are  
8 not qualified to give.

9 THE WITNESS: I understand that.

10 MR. HEBDON: Thank you.

11 BY MR. HEBDON:

12 Q First of all, I would like to ask you some questions  
13 concerning some questions that were asked by the ACRS during  
14 their review of the Pebble Springs docket. Particularly, prior  
15 to March 28, 1979, what knowledge did you have concerning the  
16 questions raised by Mr. Ebersole of the ACRS concerning the  
17 B&W small break LOCA analysis?

18 A Rather extensive knowledge.

19 Q Would you describe the knowledge that you did have?

20 A Well, there was a series of questions, and I have  
21 forgotten, 25 or so questions raised by Mr. Ebersole, who  
22 provided those in written form to us after a Subcommittee  
23 meeting, I think. He was part of the Subcommittee for  
24 Pebble Springs.

25 Those questions were rather extensive in nature and



1 some of them related to small break LOCA, some of them related  
2 to auxiliary feedwater, complete loss of feedwater, loss of  
3 off-site power, loss of all AC power, and several broad-ranging  
4 questions. We reviewed those, and it was very detailed.

5 My knowledge is in terms of a peripheral way, knowing  
6 what the subject way. I did not take each issue and in  
7 exhaustive detail examine the cogency of the question and the  
8 applicability, necessarily. But we took a look at that in some  
9 detail.

10 And then, as I recall, we had several meetings with  
11 the staff. We sent a letter to the applicant saying, we have  
12 these questions and would you please respond. We also sent  
13 a letter to the staff, not only sending the Ebersole questions,  
14 but also the applicant's response to all of the appropriate  
15 review branches.

16 And we had a subsequent meeting with all of the  
17 review branches and the people that were involved in the  
18 review of each one of those particular questions. At the  
19 subsequent ACRS meeting, the applicant made a presentation  
20 item by item. Mr. Ebersole and the rest of the ACRS -- this  
21 was in front of the full Committee, during the Pebble Springs  
22 full Committee hearing, a meeting, rather -- Mr. Ebersole  
23 extensively discussed those with the applicant, and turning  
24 to the staff from time to time for the staff's perception.

25 My feeling is that Mr. Ebersole was--and I think

1 said so -- was very pleased with the response and complimented  
2 the applicant for the job that it did.

3 Q The letter forwarding the questions from the ACRS  
4 basically asked the questions of the staff?

5 A Right.

6 Q Why were the questions then forwarded to the utility  
7 to respond to?

8 A Well, we discussed this, I think, with the ACRS  
9 staff, as I recall, and it was an agreement or an understanding  
10 or we came to some understanding that these questions, although  
11 the letter said, I want the staff's response, we also inter-  
12 preted that as a broader -- in a broader context, that not  
13 only the staff but the applicant should respond, and then we  
14 would evaluate the applicant's response. Because that is  
15 normally the way we do business. The applicant proposes and  
16 we review. And we don't necessarily have all of the details  
17 of all of the designs.

18 As you know, the review proceeds in accordance with  
19 the Standard Review Plan and it appeared most expeditious to  
20 get the applicant's response, and we reviewed that.

21 Q Was it a common practice for the ACRS to send ques-  
22 tions to the staff directly?

23 A We would get questions from the ACRS frequently.

24 Q In a formal manner such as this, in the form of a  
25 memo and formal written questions?

1           A.    Yes.  We got some the other day on FNP, about three  
2 pages' worth.

3           Q.    Was this a common practice at the time that it was  
4 done in this particular case, in late 1977, for the ACRS to  
5 provide?

6           A.    Common practice?  No, I would not say it was common  
7 practice.  It was a practice.  It was a specific requirement  
8 from Mr. Ebersole, one of the members.  And we have had  
9 questions, formalized questions, from the ACRS.  I've forgotten  
10 the mechanism that the letter -- do you happen to have a copy  
11 of the letter we got from the ACRS?

12          Q.    Yes, I do.  It was a memo that was just addressed to  
13 the staff.  I can get a copy of it if you like.

14          A.    Do you recall who it was addressed to.

15          Q.    By name I don't recall.

16          A.    My perception was at the time that there was no  
17 great -- there was no focused attention by Mr. Ebersole that  
18 he only wanted the staff.  He wanted answers to the questions,  
19 and I think we made some -- there was some discussion about  
20 that, and the agreement -- and I think the appropriate proce-  
21 dure was agreed upon, was to get the applicant to answer  
22 those.

23                   MS. NORDLINGER:  Would that letter be useful to you?

24                   THE WITNESS:  Yes.  I would like to see exactly who  
25 it was addressed to.

1 MR. HEBDON: Certainly. Let's go off the record for  
2 a moment.

3 (Discussion off the record.)

4 MR. HEBDON: Let's go back on the record.

5 For the record, this is a memo from Mr. Muller,  
6 senior staff engineer of the Advisory Committee on Reactor  
7 Safeguards to Carl Stahle, dated November 7th, 1977.

8 BY MR. HEBDON:

9 Q Now, as I understand it, that's the memo that  
10 forwarded the questions to the staff?

11 A Right, from a member of the staff. And we oftentimes  
12 get questions in this form, often. It is not very often we  
13 get them more formalized from either Max Carbon or Mr. Fraley,  
14 but we do do that too. But the interaction between my staff  
15 member and the staff member from the ACRS takes place rather  
16 often.

17 Q Was this a common practice in the period when this  
18 particular memo was written, in late 1977?

19 A My perception is that it was, I would not say  
20 common, but it has occurred frequently.

21 Q What was your responsibility or function with respect  
22 to this information in these questions?

23 A To assure that it was reviewed.

24 Q What significance did you attribute to the concerns  
25 raised by Mr. Ebersole and the responses provided by PG&E?

1           A.    The significance I placed on it were, depending upon  
2 what the question was -- in some instances I felt the questions,  
3 while plausible, perhaps exceeded what were then NRC require-  
4 ments as related to single failure or loss of all AC power.  
5 My perception was that these questions were penetrating and  
6 thoughtful questions, and that the answers likewise were  
7 thoughtful and responsive.

8           Q.    Do you recall a particular question, Question No. 6,  
9 that refers to the small break LOCA analysis?

10          A.    Yes.

11          Q.    Part of that question discusses the issue of the  
12 operator's interpretation of pressurizer level. Do you recall  
13 reviewing the response provided by the utility to that parti-  
14 cular part of the question?

15          A.    I recall reviewing the responses. I don't know that  
16 I focused or recall focusing specifically at that time on that  
17 response.

18          Q.    Have you reviewed those responses subsequently?

19          A.    Yes.

20          Q.    Do you feel that the applicant adequately responded  
21 to that particular question?

22          A.    Well, I'm not sure that I understand all the ramifi-  
23 cations in detail, the similarities that are being placed upon  
24 that response or that scenario and the TMI 2. There are signi-  
25 ficant similarities. There are also differences.

1           There have been discussions between the various  
2 technical specialists on that specific issue and there are  
3 similarities, but there are also differences. Whether or not  
4 one could have extrapolated the subsequent events at TMI 2  
5 from that specific question and the response depends a great  
6 deal upon your own understanding in intimate detail with the  
7 system, as well as some of the specific other events that  
8 could have happened in addition to what was outlined in the  
9 question.

10           BY MR. FOLSOM:

11           Q.    I think you jumped beyond the question to answer  
12 something that might come up in the future. But the question  
13 really was, do you think that the answer to Question 6 was  
14 adequate from PG&E?

15           A.    From my understanding at the time, I felt that the  
16 answer -- they answered the question.

17           Q.    Now, you've looked at it since. Do you still think  
18 it is adequately answered?

19           A.    Well, I haven't looked at it in the last three months.  
20 And as I recall, when I looked at it there were some simi-  
21 larities, but I could also see some dissimilarities --whether  
22 or not, if they had extrapolated to some other contributing  
23 event, whether or not the response would have been adequate.

24           BY MR. HEBDON:

25           Q.    What responsibility did the staff have to review



1 the technical content of the responses?

2 A. The same responsibility they have to review any  
3 applicant response in connection with a licensing case.

4 Q. Do you know if the staff in fact reviewed the  
5 responses for their technical content?

6 A. As I recall the meeting we had, that they had reviewed  
7 it.

8 Q. Were there any questions or concerns raised by the  
9 staff as a result of their review of the responses?

10 A. Not to my knowledge.

11 Q. In the normal course of a review, if the staff sent  
12 out that number of questions, 25 or 26 questions, and received  
13 responses, would it be normal for them to be able to review  
14 those responses and not have any additional questions, based  
15 on your experience? Does it strike you at all odd that, with  
16 that many questions, the staff had no additional concerns or  
17 no additional questions that they wanted to ask back of the  
18 applicant?

19 A. It doesn't strike me as odd, because most of the  
20 questions went to scenarios that went somewhat beyond the  
21 assumptions and requirements laid on by the standard practice  
22 of Standard Review Plans and Regulatory Guides. So there was  
23 a degree of interpretation that one wants to make on those  
24 questions, that perhaps the reviewer recognized the question  
25 and said, well, it would be interesting to see what the answer

1 is, but it didn't raise into his mind any doubts about his  
2 previous review in accordance with the guidance that he had.

3 MR. HEBDON: Let's go off the record a second.

4 (Discussion off the record.)

5 MR. HEBDON: Let's go back on the record.

6 BY MR. HEBDON:

7 Q Did you make any attempt to get more detailed  
8 positions from the staff concerning the questions or their  
9 responses?

10 A Of these 26 questions?

11 Q Of these 26 questions and responses.

12 A No. I assumed that the appropriate attention and  
13 the appropriate evaluations had been made.

14 Q As you mentioned earlier, Mr. Ebersole also discussed  
15 these issues during the January 1978 ACRS full Committee  
16 meeting. Do you recall that particular meeting?

17 A Yes.

18 Q Do you recall his discussion of these questions?

19 A As I indicated earlier, I recall his discussion as  
20 the applicant went through. I'm not sure he went through  
21 item by item, but I think he responded to questions that  
22 Mr. Ebersole had based upon the applicant's response. I think  
23 that was the format. And the applicant then answered specific  
24 questions for Mr. Ebersole and from time to time he would turn  
25 to the staff for some comments.

1 Q. Do you recall the discussion of Question No. 6?

2 A. I don't recall the discussion of Question No. 6.

3 Q. Do you recall a discussion of the fact that the  
4 operators would not normally be trained to see this particular  
5 transient described in Question No. 6 during their simulator  
6 training?

7 A. I don't recall any discussion.

8 Q. Do you know if anyone on the staff discussed any  
9 of the questions or responses with anyone on the ACRS or the  
10 ACRS staff?

11 A. Carl Stahle might have, is the only one I could  
12 think of. I don't know whether the other technical reviewers  
13 that attended these meetings that I discussed in terms of  
14 evaluating the questions, whether they had any discussion with  
15 the ACRS staff. I don't know.

16 Q. Approximately how many of these meetings were held?

17 A. Which meetings, now?

18 Q. The meetings you are referring to within the staff.

19 A. I think there was one that we had when the questions,  
20 responses came in outlining responsibilities or outlining the  
21 need that we had and the people who would attend. Then we had  
22 another meeting with management to go over the more -- high-  
23 light the ones that maybe required a little more in-depth  
24 evaluation than some of the others.

There were two, I think. Carl Stahle himself may

1 have had other informal meetings, but I don't know.

2 Q In hindsight, what significance do you assign to  
3 the concerns raised by Mr. Ebersole?

4 A Well, I think you could take almost any of the  
5 questions that Mr. Ebersole raised and, by some extrapolation  
6 or some peripheral modifications, probably devise scenarios  
7 that may be lurking out there yet, and that probably that, had  
8 we been -- had some foresight about the specific events that  
9 happened and perhaps more knowledgeable about or more appre-  
10 hensive about operator action, perhaps one might have said  
11 that that could have given at least some indication of some  
12 problems.

13 But I'm not so sure you could separate that one  
14 particularly from any of the others.

15 Q I would like to go on and ask you some questions that  
16 are in a more general sense concerning the functioning of the  
17 NRC.

18 Is there anyone in NRR who considers the operator  
19 as a subsystem and assesses his interaction with the overall  
20 system, to your knowledge?

21 A Well, we assess the operator. In the technical  
22 review branches, I assume you're speaking of.

23 Q In any of the areas that you know of, to your know-  
24 ledge within the NRC.

25 A Well, certainly operator training and the Operator

1 Training Branch reviews the operator as a subset in the system  
2 of operating the plant, and as part of -- just as a piece of  
3 hardware, they are part of operating the plant.

4 Q But that is from the context of training the  
5 operators?

6 A Right.

7 Q Is there anyone that looks at the operator and says,  
8 Here is what the operator is likely to see and here is what he  
9 might do, or here's what he might not do?

10 A You are discussing it in terms of the design and  
11 the technical disciplines as such, in the design of the plant,  
12 for instance, or a specific system? Our concern is given to  
13 the operator reaction.

14 Q Well, for example, we have a Reactor Systems Branch  
15 and they make an evaluation of reactor systems. Is there a  
16 comparable Operator Systems Branch that makes the same types  
17 of analyses of the operators?

18 A Other than what would take place, to my knowledge,  
19 in the Instrumentation and Control Branch, who view instruments  
20 to monitor the course of an accident, for instance, or any of  
21 those instrument areas where they do have some operator  
22 interaction and cognizance there. They may in terms of, for  
23 instance, assembling instruments on a control board, certainly  
24 have the operator somewhat in mind. Except for that area, I  
25 don't know of any areas where that might take place.



1 Q What is your perception of the relationship between  
2 I&E and NRR?

3 A The technical relationship? Well, for construction,  
4 for plants under construction, they are responsible to monitor  
5 that the plant is being built in accordance with the construc-  
6 tion permit, which includes the PSAR and all of the other  
7 commitments by the applicant. They review the construction  
8 QA and make periodic inspections, announced and unannounced.  
9 If there are particular problems that occur, by a transfer of  
10 lead responsibility we get involved if it is appropriate, if  
11 it requires a technical decision upon a certain requirement  
12 that the applicant has not met or seems to be a problem to I&E.  
13 So we get involved in that interface.

14 So there is considerable interface in that area  
15 under construction. And when plants are nearing the licensing  
16 stage, they conduct all of the pre-CP QA reviews. If, for  
17 instance, they provide bulletins, if a bulletin goes out, there  
18 is an interaction in terms of bulletins that they provide with  
19 DOR, and we get copies in DPM as well of all the bulletins.

20 Occasionally, in a plant under construction or even  
21 an operating plant, a bulletin goes out and they get a  
22 response in as a result of that bulletin that requires some  
23 technical evaluation. By a mechanism of the transfer of lead  
24 responsibility, they outline that issue and essentially  
25 turn that particular problem over to NRR. And there are monthly



1 meetings between NRR and I&E at the assistant director level  
2 to discuss mutual problems.

3 Q In your opinion, how effectively does the current  
4 I&E-NRR relationship facilitate the feedback of operational  
5 experience into the licensing process?

6 A Well, I can't speak except from general knowledge of  
7 what happens between DOR, who have most all of the operating  
8 plants, how that feedback mechanism -- I know that there is  
9 significant interaction on LERs and significant events of the  
10 day and that sort of thing. But in terms of the review -- and  
11 I am assuming that you mean how, in the review process, do  
12 things that I&E unearth, how do they get translated into the  
13 review process.

14 Q Yes.

15 A There are -- the LERs are distributed to all the  
16 branches, including the technical review branches. The  
17 bulletins are, likewise. There I don't believe is a formal  
18 mechanism that reviews and highlights for technical review  
19 the disciplines' particular LERs to be given specific attention,  
20 unless they came through the transfer of lead responsibility,  
21 which is a specific problem that I&E sees that NRR needs to  
22 get involved in.

23 But in terms of a formalized mechanism for assuring  
24 that experience is translated into reviews of ongoing applica-  
25 tions, except for this informal process, which is rather

1 extensive, I don't know of a formalized way. There may be one,  
2 but I don't know of one.

3 Q When a significant incident occurs at a plant, at  
4 an operating plant, what are the lines of authority and  
5 responsibility for the subsequent investigation and analyses?

6 A I'm afraid I really don't know all of the established  
7 lines of authority. I do know that is an Operating Reactors  
8 responsibility.

9 Q Well, it would still be a DPM responsibility for the  
10 year or 18 months that an operating plant remains under control  
11 of DPM.

12 A Ostensibly, but in actual fact, as in TMI 2, although  
13 the transfer has not taken place, the operating problems there,  
14 the problems that occurred at TMI 2 were directly translated  
15 into actions by the Director of NRR to DOR, who then took  
16 actions.

17 Q TMI, I think, may have been a little bit more  
18 severe than what I really had in mind. What I was concerned  
19 about would be some of the more significant incidents that  
20 occurred prior to TMI, more in the context of the staff being  
21 involved in an analysis and investigation, rather than an  
22 actual effort to combat the particular incident.

23 Do you have any feel for the lines of authority and  
24 the procedures that would be followed in conducting an investi-  
25 gation of such an incident?

1           A.     Well, if an incident happens at a plant, I&E, of  
2 course, is the first line. They either have a resident  
3 inspector or they have a regional. So under our present  
4 procedures, they have this open line of communication to the  
5 incident center, which is now established at all the operating  
6 plants. So that immediate contact would be made at the incident  
7 center, as well as to the resident inspector.

8           The incident center is manned 24 hours a day now with  
9 DOR personnel and I&E personnel. That incident center then  
10 has established, as I understand it, specific procedures of  
11 who to contact and who would be available and what actions  
12 would take place from then on, depending upon what the parti-  
13 cular problem was.

e-7       14           Q.     What is a safety-related system?  
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1           A.    A system that is required to mitigate or -- I have  
2 forgotten what the specific words are -- to mitigate or prevent  
3 safety problems -- protection to the health and safety of the  
4 public.

5           Q.    Do you know where that particular term is defined?

6           A.    I don't think it is defined any specific place.  And  
7 by practice, it is included, the list of systems that are  
8 included in the Appendix B list of systems that require a cer-  
9 tain QA, Appendix B QA procedure.

10          Q.    Appendix B to what?

11          A.    Appendix B to 10 CFR 50.

12          Q.    What does it take to be classified as a safety-related  
13 system?

14          A.    I don't know if there is a formalized procedure.  It  
15 depends upon the perception of what that system does.  If it  
16 has certain attributes in terms of mitigating or preventing  
17 accidents or preventing doses in excess of whatever the particu-  
18 lar limits are, which I have forgotten, then the NRC establishes  
19 requirements for that in terms of seismic categories and redun-  
20 dancy and IEEE.

21          Q.    Who decides if a system is safety-related?

22          A.    The appropriate technical review branch, if there are  
23 changes.  There are certain sets of safety-related systems now  
24 existing.  If a change is made, as it was made recently to a  
25 certain part of the effluent treatment system, it was decided

1 that that system would be safety-related and certain safety-  
2 related requirements were imposed upon it by the appropriate  
3 branch that was responsible for the review of that particular  
4 part of the design.

5 Q Was that decision to include that particular part of  
6 the system as safety-related reviewed by the RQC?

7 A I think it was, yes.

8 Q So, then, it sounds like there is some standard list  
9 of safety-related systems. Is that a true statement?

10 A I don't know if it is standard. I think that each  
11 particular plant has those structures and systems important to  
12 safety, safety-related, which require established QA procedures  
13 in accordance with Appendix B of 10 CRF 50. That list is then  
14 the list that is provided in the PSAR and FSAR, which comprises  
15 a list of the safety-related systems and components. Whether  
16 there is a standard one that appears in a regulatory document,  
17 I am not clear that there is.

18 Q Do you know if there is -- if a list of what systems  
19 are defined as "safety-related" is included in the standard  
20 review plan?

21 A I don't know that.

22 Q What design review is required for a safety-related  
23 system?

24 A The design review is outlined in the standard review  
25 plans, and I can't be any more specific than that.



1 Q What design review is required for nonsafety-related  
2 systems?

3 A Again, whatever is required in the standard review  
4 plan, which, as you know, is a rather extensive document.

5 Q Based upon your understanding of the standard review  
6 plan, in your experience, could you compare or contrast the  
7 design review of safety-related equipment as compared to the  
8 review of nonsafety-related equipment?

9 A I believe nonsafety-related equipment receives a  
10 review commensurate with its role in the system. For instance,  
11 there are nonsafety-related systems that become important if,  
12 as a consequence of its failure, it could impact or somehow  
13 influence a safety-related system. So, in that respect,  
14 nonsafety-related systems have a gradation as well, that they  
15 get somewhat of a more detailed review. Nonsafety-related  
16 systems, such as the parking lot lighting, for instance, or  
17 others, would receive practically no review, if any at all.

18 Q What about something like the power-operated relief  
19 valve; is that normally considered to be a safety-related system  
20 or nonsafety?

21 A As far as the relief valve itself, as far as its role  
22 that it plays in the small-break LOCA, I believe, as far as its  
23 mounting and its role in the primary system, is a safety-  
24 related system. I do not know about its control instrumentation  
25 or control mechanism. I think it might be, but I am not sure.



1 But certainly, the part it plays in the primary system, it is  
2 a safety-related system, in terms of its mechanical components.

3 Q Do you feel that the characterization of systems as  
4 "safety-related" is applied in a consistent manner?

5 A I have no reason to believe it is inconsistent. It  
6 wouldn't surprise me if there were instances of inconsistency.

7 Q One example that has been cited that may clarify the  
8 point that I am trying to make is that the diesel is classified  
9 as a "safety-related system," but the air-start system for the  
10 diesel is not.

11 A That seems to be inconsistent.

12 Q Are you aware of other similar inconsistencies in the  
13 application of that definition?

14 A I am not right at the moment aware.

15 Q Is it your perception that such inconsistencies are  
16 common?

17 A Not being aware -- and myself, as I said -- I don't  
18 believe I would be surprised if there were inconsistencies. I  
19 would be surprised if they were common.

20 Q Do you know of any other precursor events that are  
21 relevant to the accident at TMI?

22 A Yes. The Davis-Besse incident, I think, is probably  
23 the most analogous to the TMI event, the Davis-Besse that was  
24 the subject of a board notification, I think, in April, or maybe  
25 it was earlier.

1 Q Is that the incident that occurred in September of  
2 1977?

3 A I think it was. It was where the operator recognized  
4 the PSOV was open and closed it rather expeditiously. There  
5 were some similar problems that occurred. As one looks at it  
6 now, with the knowledge of TMI-2, there are significant simi-  
7 larities to that action.

8 Q Did you have any knowledge of that particular event  
9 prior to the accident at TMI?

10 A I saw the board notification, and I saw I&E's evalua-  
11 tion, which I read in passing. These are distributed for  
12 information purposes. I think I routed it to Carl Stahle,  
13 because of some gross similarities at that time that I thought  
14 had some impact with Pebble Springs, just for his information.

15 But I didn't do anything more with it.

16 Q Was this before or after the accident at TMI?

17 A Before.

18 Q The board notification that you're referring to?

19 A Was before the accident.

20 Q This is a board notification of the accident?

21 A To all the boards, to sitting boards, all of the  
22 boards.

23 Q Of the accident that occurred at Davis-Besse?

24 A Yes.

25 Q Do you have a copy of that board notification in your

1 files?

2 A. No. But it is readily available. I don't have it in  
3 my file. Mr. Vassallo has it in his file, the board notifica-  
4 tion file.

5 Q. Could you possibly get us a copy of that and provide  
6 it to us?

7 A. Sure.

8 Q. Thank you. Do you have any additional information  
9 that might be relevant to our inquiry into the events surround-  
10 ing the accident at TMI?

11 A. No. I have none. Nothing further to add. If you  
12 have any other questions, I will be glad to answer them.

13 MR. HEBDON: Let's go off the record for a moment.

14 (Discussion off the record.)

15 MR. HEBDON: Let's go back on the record.

16 That is all the questions we have for right now.

17 We would like to reconvene this interview tomorrow,  
18 August 16, at 10:45, at this same location. Is that agreeable  
19 to you?

20 THE WITNESS: Yes. Do you have any idea how long it  
21 might be?

22 MR. HEBDON: I would guess a half an hour to 45  
23 minutes. It should be by noon.

24 MR. FOLSOM: Now, the witness understands that he  
25 remains under oath and that all the warnings and preconditions

1 to this meeting are still applicable to tomorrow's meeting.

2 THE WITNESS: I understand that.

3 MR. HEBDON: Thank you.

4 (Whereupon, at 12:45 p.m., the interview was  
5 adjourned, to reconvene at 10:45 a.m., on Thursday, August 16,  
6 1979.)

end#8

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