

1 to identify nozzles that have crack  
2 leaking before the next refueling  
3 technique that they use is very se  
4 those that are partway through th  
5 through the nozzle with a nondestructive evaluation.

6 Q. Okay. Is it fair to say then that the nondestructive  
7 exams find cracks before -- can find cracks before they leak?

8 A. Yes.

9 MR. HIBEY: Objection.

10 THE COURT: Overruled.

11 MR. POOLE: Your Honor, I'd like to take a second

12 to review my notes.

13 Your Honor, that concludes our redirect

14 examination.

15 MR. HIBEY: No recross.

16 MR. GORDON: Nothing, Your Honor. Thank you.

17 THE COURT: You may step down, sir.

18 Are you ready to call your next witness, Mr. Poole?

19 MR. BALLANTINE: The United States --

20 THE COURT: Mr. Ballantine.

21 MR. BALLANTINE: Thank you, Your Honor. The

22 United States calls Greg Gibbs.

23 (The witness was sworn by the clerk.)

24 ---

25 GREG GIBBS, DIRECT EXAMINATION

1 to identify nozzles that have cracks on them that may start  
 2 leaking before the next refueling outage. And, of course, the  
 3 technique that they use is very sensitive, so you identify both  
 4 those that are partway through the nozzle and all the way  
 5 through the nozzle with a nondestructive evaluation.

6 Q. Okay. Is it fair to say then that the nondestructive  
 7 exams find cracks before -- can find cracks before they leak?

8 A. Yes.

9 MR. HIBEY: Objection.

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 12 to review my notes.

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 14 examination.

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21 MR. BALLANTINE: Thank you, Your Honor. The

22 United States calls Greg Gibbs.

23 (The witness was sworn by the clerk.)

24 - - -

25 GREG GIBBS, DIRECT EXAMINATION

1 BY MR. BALLANTINE:

2 Q. Good afternoon, sir. Could you, for the benefit of the  
3 court reporter, give us your full name and spell your last name  
14:18:19 4 for the record?

5 A. **Yes. My name is Greg Gibbs, G-i-b-b-s.**

14:18:24 6 Q. Mr. Gibbs, are you currently employed?

7 A. **Yes, I am.**

8 Q. What do you do?

9 A. **I'm currently the project director for the Next**

14:18:33 10 **Generation Nuclear Plant working for Battelle Energy Alliance.**

11 **The project is to design, license, and build a new**

14:18:42 12 **high-temperature gas-cooled reactor at the Idaho National**

14:18:51 13 **Laboratory.**

14:18:53 14 Q. Did you recently take that job?

15 A. **About a week ago.**

14:18:57 16 Q. What did you do before then?

17 A. **Prior to that I've worked in the nuclear industry about**

18 **37 years. The first 17 of those years I worked in the Nuclear**

14:19:15 19 **Propulsion Program as the head of the Nuclear Task Group as**

20 **Senior Project Manager, also as Assistant Nuclear Engineering**

14:19:23 21 **Manager at three different shipyards. Subsequent to that I**

14:19:27 22 **worked at the Davis-Besse Nuclear Power Station both as the**

23 **Director of Quality Assurance and, for a short time, for a**

14:19:34 24 **couple years, as the Director of Engineering. Following that I**

14:19:39 25 **worked at PowerLights Brunswick station as the chief engineer,**

14:19:45 **1 Site Engineering Manager. Then I started my own consulting**  
49 **2 firm for about eight years, consulted primarily to plants,**  
**3 nuclear utilities in the midwest. And after doing that for**  
**4 about eight years I worked for the Nuclear Regulatory Commission**  
**5 for approximately three years.**

14:20:08 **6 Q. All right. During your time as a Director at the**  
**7 Davis-Besse Power Station, did you come to have some familiarity**  
14:20:20 **8 with the systems there?**

14:20:21 **9 A. Yes, I did. I had specific training on the plant**  
14:20:26 **10 systems as well as being involved day-to-day in resolution of**  
14:20:31 **11 issues associated with the planning of the systems.**

**12 Q. Did you keep in contact with people who had worked in**  
**13 the plant subsequent to your leaving there?**

**14 A. Yes, I had -- I knew a number of the individuals. I**  
**15 was, like I said, a director of that plant. I kept in contact**  
14:20:51 **16 with a number of the other directors as well as some of the**  
14:20:54 **17 individuals at the plant.**

14:20:55 **18 Q. Do you recognize either of the defendants in this case?**

14:20:59 **19 A. I see Mr. Geisen seated at the table, and I see Mr. Cook**  
**20 also seated at the table.**

14:21:06 **21 MR. BALLANTINE: Will the record reflect he's**  
**22 identified the defendants?**

14:21:10 **23 THE COURT: It will.**

14:21:12 **24 BY MR. BALLANTINE:**

**25 Q. All right. I want to direct your attention to**

1 September of 2001 and ask if at that time did you, in your  
2 capacity as a consultant, take a job at the Davis-Besse power  
3 station?

14:21:23 4 A. Yes. In September of that year Mr. Steven Moffitt, who  
5 was the Technical Director at Davis-Besse, shortly prior to that  
6 asked me if I would come and review their preparations for the  
7 upcoming refueling outage with respect to the inspection of the  
14:21:46 8 vessel head penetration nozzles.

14:21:48 9 Q. And what was your understanding of the reason that that  
14:21:51 10 inspection had become especially important?

14:21:53 11 A. Well, there were plants in that year, primarily Oconee  
12 and Arkansas Nuclear, that had performed inspections associated  
13 with trying to identify cracking of the vessel head penetration  
14:22:16 14 nozzles. And they had found, particularly at Oconee,  
14:22:23 15 circumferential cracks of the penetration nozzles that had  
14:22:29 16 apparently gone from the outer diameter, which was in the  
14:22:34 17 industry, and these cracks were found by visual evidence of  
18 small amounts of boric acid crystals on the top of the reactor  
14:22:41 19 vessel head. Let me be clear about that. The implication of  
14:22:46 20 those cracks were identified in that manner. It took some  
21 nondestructive examination to subsequently identify the  
14:22:54 22 circumferential cracks.

23 Q. What was your understanding of what those indications  
24 were?

25 A. Well, as recorded from the utility experience, and the

14:23:04 **1 N.O., the visual indications were very small amounts of boric**  
10 **2 acid crystals, about a cubic inch, frequently described as**  
14:23:17 **3 popcornlike deposits. So the emphasis there was on the need to**  
**4 be able to discern that small amount of boric acid residue.**

14:23:25 **5 Q. Were you familiar with this problem in the earlier parts**  
14:23:30 **6 of 2001?**

14:23:33 **7 A. Just -- I mean, peripherally. I've seen some of the**  
14:23:40 **8 industry literature associated with the findings at Oconee.**  
**9 But not to any -- I didn't study them to any great degree until**  
**10 Mr. Moffitt requested that I -- and I agreed to do a review of**  
**11 their preparations.**

14:23:58 **12 Q. All right. So did you then -- what did you do after**  
13 **13 you spoke with Mr. Moffitt?**

14:24:03 **14 A. Well, I arrived at the site. That was on a Monday, I**  
**15 believe it was the 10th of September. Took a while to get**  
**16 badged. Then I proceeded to collect information associated**  
**17 with being able to do the review.**

14:24:19 **18 Q. You say it took a while to get badged. Just let the**  
**19 jury know what that means.**

**20 A. Well, there's a fairly rigorous process that we go**  
**21 through to be allowed access to a site. And I had not been at**  
14:24:32 **22 that site for a while, and so they simply had to find my records**  
14:24:38 **23 and review the items that they had to review. So they issued**  
**24 me a badge. And there were a volume of people that had to do**  
14:24:48 **25 that kind of thing, so it took a while to get into the site that**

1 day.

52 2 Q. Now you're on-site. What did you do next to prepare  
3 for this job?

14:25:04 4 A. I -- my first approach was to talk to Mr. Moffitt to  
5 reinforce what his expectations for the review were. Mr.  
14:25:09 6 Moffitt then took me to one of the engineers, Mr. Mark  
14:25:15 7 McLaughlin, who was designated as the project lead for  
14:25:19 8 essentially assuring preparations and conduct of this  
9 inspection. Mr. Moffitt asked if I would interface Mr.  
14:25:32 10 McLaughlin for the purpose of doing my review as well as to the  
14:25:36 11 extent that I saw performing and coaching, give him any points I  
12 might be able to give as a result of my look at this area.

14:26:47 13 Q. You're talking about the next outage at Davis-Besse.  
14 Do you know what number outage that was going to be?

15 A. I believe it was the 13th refueling outage.

16 Q. And that was going -- do you know what time of year that  
14:26:01 17 was planned?

18 A. That was scheduled, I believe, in the early spring of  
14:26:05 19 2002.

14:26:06 20 Q. So after you met with Mr. Moffitt and talked to Mr.  
14:26:12 21 McLaughlin, what did you do next?

22 A. Well, then I, of course, assembled the documents that  
23 were pertinent to preparation to inspection. Those consisted  
14:26:25 24 primarily of getting a copy of the bulletin that the NRC had  
25 issued which made requests of all licensees relative to their

14:26:36 **1** preparations and conduct of these inspections for outages. I  
**2** also got FirstEnergy's response to that bulletin. I also  
14:26:49 **3** obtained copies of a number of industry reports associated with  
**4** the Oconee experience, some from Oconee itself, others from the  
**5** Electric Power Research Institute. And in general just  
**6** collected up the documentation that was necessary. And then  
14:27:06 **7** would form the primary requirements for doing the inspection.

**8** Q. And having done that, what did you understand the  
**9** requirements to be to do that next inspection?

14:27:15 **10** A. Well, the requirements really were -- I reduced them in  
**11** my mind to four principal areas. The first of those was they  
**12** needed to have good access to the reactor vessel head. A  
14:27:35 **13** number of the reactor designs, and specifically Davis-Besse,  
14:27:39 **14** have insulation on top of the head, and so you want to make sure  
**15** there's adequate clearance and access to be able to observe the  
14:27:46 **16** condition of the head underneath the insulation. And also as  
**17** part of that access was the ability that you could establish  
14:27:58 **18** good lighting and you could get tooling in to be able to do the  
14:28:02 **19** inspections and whatnot.

**20** Second was a concern that was raised in the  
14:28:09 **21** bulletin that each plant do a plant-specific analysis that would  
**22** show that the interference -- the vessel head penetration  
14:28:20 **23** nozzles were installed in the reactor vessel head, these  
**24** four-inch nozzles in holes in the reactor vessel with an  
14:28:28 **25** interference fit. So the concern was at normal operating

14:28:32 **1** temperature and pressure there will be a dilation, so that  
36 **2** interference would become a gap. It was important, it was  
**3** felt, that gap exist so that any leakage as a result of cracks  
**4** in the nozzles would be able to flow along the access of that  
**5** nozzle penetration to the reactor vessel head surface and be  
14:28:52 **6** detected. And by experience of Oconee, for example, they found  
**7** that those gaps didn't exist, and they were unable to find small  
14:29:04 **8** amounts of boric acid crystals being indicative of potential  
**9** cracks in those penetration nozzles.

14:29:12 **10** Q. The first concern you had is -- I think you said you had  
**11** a concern about access to the head. Now you're talking about a  
**12** gap analysis?

14:29:19 **13** A. Then there were two other areas. One having to do with  
**14** the cleanliness of the head. Oconee made much about the  
14:29:28 **15** efforts they had taken prior to their inspection to get access  
14:29:34 **16** through the reactor service structure that surrounded the head,  
**17** as well as making sure that the head was clean to, like, the  
14:29:45 **18** bare metal surface. And so that was one of the elements that  
**19** was also emphasized in the bulletin, that, in fact -- the  
14:29:55 **20** necessity that a prior outage that had been established, a very  
**21** clean condition.

**22** Q. Why is it important to have you say a necessity that the  
**23** head be cleaned to the bare metal?

**24** A. Well, since the methodology of the inspection, at least  
**25** the initial indications of a cracked vessel head penetration

14:30:18 **1 nozzle would be very small, in the order of a cubic inch or so**  
**2 of residual boric acid crystals on the head; since we're looking**  
**3 for a very small amount, it couldn't be masked by some larger**  
**4 amount of residual boric acid or other debris on top of the**  
**5 vessel head. So that was the importance that they had to be**  
14:30:39 **6 cleaned, so these small deposits could be discerned.**

14:30:42 **7 Q. And was there a fourth? You said there were four**  
**8 things?**

14:30:47 **9 A. The other had to do with a question that was related to**  
**10 whether or not there were any limitations associated with having**  
14:30:56 **11 access or the condition of the head or any limitations that**  
**12 would potentially compromise the ability to do an adequate**  
14:31:04 **13 inspection.**

14:31:05 **14 Q. Did you meet with people at the plant in order to answer**  
**15 those questions?**

14:31:09 **16 A. Yes. I met with a number of individuals. I met with**  
**17 the reactor coolant system engineer; he was an individual who**  
14:31:19 **18 was heavily involved in the 12th refueling outage in the spring**  
**19 of 2000, I believe it was, and the cleaning of the reactor**  
14:31:32 **20 vessel head.**

14:31:33 **21 Q. What was his name?**

14:31:35 **22 A. Andrew Siemaszko.**

**23 I also met with Mr. Prasoon Goyal; he was a design**  
**24 engineer who had responsibility -- part of his responsibility**  
**25 was the plant specific analysis to ensure the gaps that I spoke**

1 of earlier existed.

2 I also met with management folks, also came in  
3 contact with people at meetings that I attended that were  
4 relevant to the scheduling and integration of this activity into  
5 the upcoming outage schedule.

6 Q. Why is outage scheduling important?

14:32:12 7 A. Well, when -- a nuclear utility is in the business of  
8 selling power. So the completeness and the accuracy of the  
9 schedule is very important because you're buying replacement  
10 power during that time. And so it's important that all these  
11 work activities be clearly integrated so there's a smooth work  
14:32:38 12 flow, basically, from the utility's perspective.

13 Q. From your time -- I believe you said you were the  
14 technical services director at Davis-Besse?

14:32:46 15 A. Yes. At that time the job was called Director of  
16 Engineering.

17 Q. What was your sense of what the cost of buying power  
18 during an outage might be?

19 A. I believe at that time it was on the order of around  
20 half a million to maybe \$700,000 a day, something like that.

21 Q. Per day?

22 A. Per day, yes.

14:33:11 23 Q. All right. So at this point I'd like to ask you a few

14:33:18 24 questions about the findings that you made, but before I do

25 that, I wanted to show you Government's Exhibit 60, which has

1 been previously admitted.

2 Mr. Gibbs, do you recognize that document?

3 **A. Yes. This is FirstEnergy's response to the NRC**  
4 **Bulletin 2001 concerning circumferential cracking of the vessel**  
5 **head penetration nozzles.**

6 Q. Just for everybody's reference, does it have a serial

14:33:52 7 number four lines down from the top?

8 **A. Yes, it's serial number 2731. The document is dated**  
9 **September 4, 2001.**

14:34:02 10 MR. BALLANTINE: Your Honor, may I publish this to  
11 the jury?

14:34:05 12 THE COURT: This has previously been admitted?

13 MR. BALLANTINE: Yes, it has, Your Honor.

14 THE COURT: Yes, you may.

14:34:19 15 BY MR. BALLANTINE:

14:34:19 16 Q. Mr. Gibbs, I believe you testified that this was a

14:34:22 17 document that you reviewed as part of your preparation for the

14:34:26 18 work that you did?

19 **A. That is correct. I reviewed the document from the**  
14:34:30 20 **perspective of what requirements did it establish by virtue of**  
21 **FirstEnergy's response to the NRC relative to the actual conduct**  
22 **of the inspection.**

14:34:41 23 Q. That point I'd like to draw your attention to, page 2 of

14:34:46 24 19 of attachment 1 in that exhibit.

25 **A. Very well.**

14:34:53 **1** Q. I'll publish that page to the jury. I've magnified a  
**2** section there that says, "NRC bulletin request item 1D."

14:35:08 **3** What's your understanding of what that paragraph is  
**4** beneath that heading?

14:35:15 **5** A. **Well, as it states, that request is for the licensee to**  
**6 provide a description of the nozzle and reactor vessel head**  
14:35:25 **7 inspections that they had performed previously, specifically in**  
**8 this case in the past four years, and what they had found. And**  
**9 also they ask for a description of any limitations to the**  
14:35:39 **10 accessibility of the bare metal on the reactor vessel head,**  
**11 whether it be insulation or other impediments.**

14:35:47 **12** Q. Now, if you could, look at the next page, page 3 of 19.

14:35:53 **13** A. **Yes.**

14:35:57 **14** Q. I'm going to go ahead and magnify the -- I guess it's  
**15** the second full paragraph on that page, the paragraph beginning,  
14:36:06 **16** "Inspection of the RPV head nozzle area indicated some  
**17** accumulation of boric acid deposits."

**18** A. **Yes.**

14:36:13 **19** Q. I'd like to -- well, did your review of this document  
14:36:17 **20** bring any particular concerns to the -- to your attention?

**21** A. **There was the sentence that says that the reactor**  
14:36:27 **22 pressure head area was cleaned with demineralized water to the**  
**23 greatest extent possible while maintaining the principles of as**  
**24 low as reasonably achievable practices regarding the radiation**  
**25 dose personnel received. In my mind that left open the**

1 possibility, since if there were a large amount of dose, the  
2 judgment of the people that were controlling dose at the site  
3 obtained during the cleaning activity that there may have been  
4 judgments made whether it was appropriate to continue to receive  
5 that dose and continue with cleaning operations. The  
6 consequence of that being that there was potential that the  
7 cleaning operations may have been suspended before all of the  
8 boric acid had been removed. So it was just kind of -- at that  
9 point it was just a flag for me that perhaps there was residual  
10 boric acid left on the head.

11 Q. Is that explicitly stated anywhere in this bulletin  
12 response?

13 A. Well, later on there, right in the next paragraph, it  
14 does indicate that they had rereviewed the inspection videotapes  
15 from the previous outages and that that review had determined  
16 that indications such as those that would result from reactor  
17 pressure vessel head penetration were not evident. That didn't  
18 really tell me anything. Basically from the letter I wasn't  
19 able to discern what the exact condition of the head was.

20 Q. All right. I'd like to get to that second magnified  
21 paragraph in just a moment. But your answer was that the  
22 bulletin response didn't tell you what the condition of the head  
23 was going into that next refueling?

24 A. That's correct. I couldn't formulate a clear picture  
25 in my mind of what the actual condition of the service reactor

14:38:39 **1** vessel head was. Ultimately as I got to the end of that  
● **2** inspection I felt I needed to look at the post-cleaning  
14:38:51 **3** videotapes of the reactor vessel head to give myself a clear  
14:38:56 **4** picture of what it was because I thought it was important since  
**5** I had been asked to review the preparations for the inspection.  
**6** The condition of the head would drive potentially the amount of  
**7** under-vessel head nondestructive examinations that might be  
**8** necessary. And so for that purpose I asked to see the  
14:39:13 **9** post-cleaning tapes of the head.

**10** Q. And were you able to get access to a post-cleaning video  
14:39:19 **11** of the head?

● **12** A. Yes. I went to some individuals that had worked for me  
14:39:24 **13** when I was head of the Quality Assurance Department, a Mr. Mike  
14:39:28 **14** Shepherd. I knew he was involved in service inspection  
**15** activities. I thought he might have access to those. He was  
**16** able to arrange, and they set up in his office, a video machine  
**17** so that I could view those post-cleaning tapes.

**18** Q. And what did you see on those post-cleaning tapes?

14:39:48 **19** A. I -- there were large areas of the reactor pressure  
14:39:53 **20** vessel head that were cleaned to bare metal. What I ultimately  
**21** noted was that as you neared the top of the rear insulation  
**22** where the two-inch gap exists between the reflective mirror  
14:40:08 **23** insulation and the top of the hemispherical head that there were  
**24** areas where there were considerable boric acid deposits, in some  
**25** cases even solid up to the mirror insulation.

14:40:21 **1** So basically at that point it told me that at a  
**2** minimum there were areas at the top of the head that I felt  
**3** would be compromised by the existing residual boric acid that  
**4** was there with respect to the ability to see small, less than a  
14:40:40 **5** cubic inch, popcornlike boric acid crystal deposits that were  
14:40:44 **6** indicative of leakage because the area was still covered with  
**7** boric acid; they just wouldn't be discernible. At least I  
14:40:51 **8** certainly thought there was a high probability they wouldn't be  
**9** discernible.

14:40:55 **10** And that -- and for me there was a high probability  
**11** that there might be a need for additional nondestructive  
14:41:03 **12** examination because you now lost the principal indicator, which  
14:41:08 **13** was the visual indication on the surface of the head.

14:41:11 **14** Q. And just to bring it back around to the principles you  
**15** were concerned with as you went into the job, are we talking  
**16** about the issue of baseline?

14:41:20 **17** A. Yes. The condition made apparent by both the Ocone  
**18** experience and reiterated in the NRC bulletin was the need to  
**19** have the reactor vessel head cleaned down to bare metal, okay.  
14:41:38 **20** Again, the reason for that was being able to discern small  
14:41:42 **21** deposits. So this represented a condition that was not  
**22** consistent with that experience.

14:41:49 **23** Q. You looked at the as-left video record for the 2000  
14:41:55 **24** inspection; is that right?

**25** A. That is correct.

14:41:57 **1** Q. Did you look at any other videos?

**2** A. **I did not.**

**3** Q. So I believe you testified that the video you looked at  
**4** was the post-cleaning?

14:42:08 **5** A. **That's correct. After they had actually removed boric**

14:42:13 **6 acid deposits that existed from the head, individuals at the**

**7 plant told me that they used crowbars and other mechanical**

14:42:21 **8 devices to remove tightly adherent boric acid deposits from the**

**9 head during that outage, and then that was part of the activity**

**10 to get the head as clean as possible.**

**11** Q. But you didn't see the pre-cleaning video?

**12** A. **I did not.**

14:42:37 **13** Q. All right. At this point I'd like to look at the

**14** second paragraph that's been highlighted here, or magnified and

14:42:48 **15** highlighted. I believe you were talking about this earlier.

14:42:51 **16** It's the paragraph that's headed, Subsequent Review of 1998 and

14:42:55 **17** 2000 Inspection Videotape Results.

**18** A. **Yes.**

14:42:58 **19** Q. What was it that you took away from this paragraph of

**20** the bulletin response?

14:43:03 **21** A. **Well, this was a statement that they had looked at those**

14:43:10 **22** previous results to confirm whether -- to reconfirm whether or

**23** not the indications of boron leakage -- they were trying to

14:43:19 **24** establish they were not similar to what was seen at the Oconee

14:43:23 **25** plant. **That's okay in and of itself. In fact, they're not**

14:43:27 **1** indicative of the Oconee plant leakage. But it doesn't really  
31 **2** tell you anything about what the condition of the head is.

**3** Q. So this statement -- well, what do you mean that it  
14:43:37 **4** doesn't tell you anything about the condition of the head?

**5** A. Well, for example, there are the two possibilities: One  
**6** is that the head is clean and that there are no indications of  
14:43:53 **7** vessel head penetration nozzle leakage; another possibility  
**8** might be that the head is covered with areas of boric acid.  
**9** Well, if the head is covered with boric acid, clearly you  
14:44:04 **10** wouldn't see that these small deposits were evident. So in and  
**11** of itself, it didn't establish a condition for me.

14:44:20 **12** Q. Was there a particular issue about, I guess, direct  
**13** access to the reactor vessel head that drew your attention based  
**14** on your past experience as a director at Davis-Besse?

14:44:33 **15** A. Yes, there was. One of the things that I became aware  
**16** of early on in the four days that I spent there doing this  
14:44:41 **17** inspection, I was at a meeting on the second day; that meeting  
14:44:46 **18** was to discuss the integration of the inspection requirements  
**19** and activities with the outage schedule. And during that it  
14:44:56 **20** became evident that -- it became clear to me that prior plans to  
14:45:02 **21** provide larger access openings in the reactor vessel structure  
**22** that surrounds the head had not been implemented.

14:45:12 **23** And that surprised me because I recall the summer  
**24** that I left Davis-Besse there was fairly rigorous discussion  
14:45:20 **25** going on between the plant engineering group of engineers and

1 the design folks. The plant engineering folks felt there wasn't  
2 a need to do so; the design engineering folks felt that there  
3 was a need to provide a service structure, particularly given  
4 the experience in the French plants and the rising concern on  
5 the part of the NRC of potential safety issues associated with  
6 this cracking. So at that time I, in fact, had sort of  
7 adjudicated the argument, if you will, and said, we will; we  
8 will proceed with the cutting the access holes. This is, like,  
9 in the summer of '94. And when I left, I left with the  
10 understanding that there had been budget approval and approval  
11 to go forward with the design.

12 So here we are now in 2001 and I'm discovering that  
13 that work hasn't been done. I thought, gee, that's not good  
14 because those small weep holes that you see there in the bottom  
15 of the head are the only access that's available at Davis-Besse.

16 Q. And just for the record, you're referring to the small  
17 weep holes on Government's Exhibit 125?

18 A. That would be these weep holes here at the bottom. I  
19 think they're about 18 in number. They go around the periphery  
20 of the vessel.

21 Q. Can you point -- just give the jurors a general idea of  
22 what you mean by cutting access holes to the service structure?

23 A. The plan was to cut, I think, on four, if you will,  
24 like, manways; an access large enough that a man could get  
25 through to be able to, one, clean; two, inspect and what have

1 you, okay.

20 2 Q. What other concern did you have or were there other  
3 concerns that you had as you went through these documents and  
4 met with folks at the plant?

14:47:28 5 A. **Aside from the access limitations and the condition the**  
14:47:34 6 **reactor vessel head was left in, I noted that in the FirstEnergy**  
14:47:39 7 **response to this document there was no commitment to perform a**  
8 **plant-specific analysis of the gaps between the vessel head**  
14:47:50 9 **penetrations and the holes in the reactor vessel head for those**  
10 **penetration nozzles. I spoke with Mr. Prason Goyal and**  
14:48:01 11 **subsequently found out that, in fact, they had entered into a**  
12 **contract with an engineering firm to actually perform those**  
14:48:10 13 **analyses using the plant-specific information about what the**  
14:48:13 14 **actual diametrical interferences were between the vessel head**  
15 **penetration and the openings in the head, and hence -- well, as**  
16 **a response they were taking action to get those plant-specific**  
14:48:29 17 **analyses performed to be able to make the case that the normal**  
14:48:37 18 **operating temperature and pressure of the reactor, that these**  
14:48:43 19 **interferences would open the gaps and hence provide a path for**  
20 **any leakage to escape.**

21 Q. Did Mr. Goyal satisfy you on that?

14:48:54 22 A. **Yes. He gave me the document, the proposal that a**  
23 **particular firm had presented him to do those analyses.**

14:49:06 24 Q. Approximately how much time did you spend at the plant  
14:49:09 25 as part of this project?

14:49:20 **1 A. Actual contact time doing the inspection was about three**  
**2 and a half days, and the other half-day spent writing the report**  
**3 of my observations.**

14:49:24 **4 Q. You referred to it as an inspection. Were you**  
**5 inspecting any part of the reactor itself?**

**6 A. You'll have to excuse me. That's left over from my**  
**7 previous employer. It was essentially an assessment of their**  
**8 preparations for doing the work.**

14:49:39 **9 Q. So did you write up some findings?**

14:49:47 **10 A. Yes, I did. I wrote -- in the form of a letter I**  
**11 provided my observations as a result of the review that I had**  
**12 done of their preparations.**

**13 Q. I'm going to hand you Government's Exhibit 65 and ask**  
**14 you to take a look at that.**

14:50:02 **15 A. Okay.**

14:50:03 **16 Q. What is that document?**

**17 A. This is a letter that I had addressed to Mr. Mark**  
14:50:10 **18 McLaughlin. Again, Mark was the project engineer for the**  
14:50:14 **19 inspection activity. And in it I address the observations I**  
**20 made as a result of the work that I did there for those three**  
**21 and a half days.**

14:50:25 **22 Q. Let me ask you, did you distribute these findings?**

**23 A. I made a partial distribution of the findings. I**  
14:50:38 **24 personally left copies with Mr. Steve Moffitt; although Mr.**  
14:50:46 **25 Moffitt was not there on that Friday, I left them on his desk.**

1 Again, Mr. Geisen was not there that Friday, at least at the  
2 time that I was trying to locate him, and so I left a copy on  
3 his desk. I also gave a copy, because it's addressed to Mr.  
4 Mark McLaughlin, and I specifically reviewed more or less line  
5 by line my results with him. And I can't remember for sure; I  
6 believe I saw Mr. Andy Wilson that Friday and gave him a copy  
7 and asked him to give Mr. Coakley his copy.

8 I believe -- it turned out, I wasn't aware, the  
9 site worked sort of a compressed work schedule. I believe that  
10 was one of their Fridays off. So I was surprised to find a  
11 large number of people I hoped to talk to were not there that  
12 day.

13 Then I also asked Mark if he would make  
14 distribution to all the project team members, folks that were on  
15 his team.

16 Q. I don't think we've covered that at this point. What do  
17 you mean by the "project team"?

18 A. There was a team of individuals that had been formed to  
19 -- sort of multidisciplined, both functionally and by training  
20 and experience. It was a team made up of Mr. McLaughlin; Mr.  
21 Prason Goyal representing design; Mr. Andrew Siemaszko, the  
22 system engineer; Mr. Chuck Daft who was representing  
23 nondestructive activities; Mr. Frank Kennedy for licensing; Mr.  
24 Mel Surely for inspection; and Mr. Brad Baumgardner for  
25 radiation protection.

1 Q. So they were the team that was going to be working on  
2 the inspection in the 13th refueling?

3 A. **That is correct. Well, doing the planning, making sure**  
4 **the preparations were in place. And it doesn't appear exactly**  
5 **what their involvement was during the inspection. I didn't**  
6 **raise a question about that.**

14:52:58 7 Q. Why, in particular, did you leave a copy for David  
8 Geisen?

14:53:03 9 A. **Mr. Geisen was the manager of design engineering, and**  
10 **because one of the essential elements had to do with the**  
11 **confirmation of the gaps, and I talked with Mr. Prason Goyal**  
12 **about that, obtained information from him, I left it with Mr.**  
14:53:19 13 **Geisen just as a courtesy because there were some activities in**  
14 **his department that I was discussing here.**

14:53:26 15 MR. BALLANTINE: I'd move to admit Government's  
14:53:28 16 Exhibit 65.

14:53:30 17 MR. HIBEY: No objection.

14:53:33 18 MR. WISE: No objection.

14:53:36 19 MR. CONROY: No objection.

20 THE COURT: It will be admitted as to Government's  
14:53:39 21 Exhibit 65 without objection.

14:53:42 22 MR. BALLANTINE: Your Honor, if I may, I'd like to  
14:53:44 23 publish the first page of this exhibit.

14:53:58 24 BY MR. BALLANTINE:

14:53:58 25 Q. Have I displayed the first page of your report, your

1 letter on the monitor there?

2 A. Yes.

14:54:07 3 Q. I just want to ask you to indicate where in your letter

14:54:12 4 you communicated these concerns that you've already described to  
5 the jury.

6 A. The first concern relative to access and the condition

7 of the reactor vessel head was addressed in the very first

14:54:23 8 paragraph of the letter report. I indicated that the team

14:54:30 9 members were not in agreement concerning the need to cut access

14:54:42 10 holes in the reactor surface structure starting with the 13th

11 refueling outage.

12 Q. You say in the first paragraph. Do you mean the first

14:54:51 13 numbered paragraph?

14 A. That is correct. Yes. Thank you.

14:54:57 15 Q. So that was an issue of access?

16 A. Yeah. As it turns out, of course, as I indicated

14:55:04 17 previously, because boric acid had been left on the head, it

14:55:10 18 presented two problems: One, there were mechanisms for nozzles

19 for which there would have to be --

14:55:19 20 Q. I'm sorry, what was that?

21 A. Nondestructive examinations, excuse me. And secondly,

14:55:28 22 you had to get access. Partially the reason due to that area

23 not being cleaned was the limited access through weep holes that

14:55:38 24 we demonstrated to the jury earlier. So the -- it was clear in

25 my mind, particularly as a result of my previous experience at

1 Davis-Besse, as well as the points that were made in the Oconee  
2 report and reflected in the NRC bulletin, that this access was  
3 necessary; particularly, being able to clean any deposits that  
4 were left from the 12th -- from the operating cycle following  
14:56:07 5 the 12th refueling outage and any subsequent inspection efforts  
6 that would be ongoing in future subsequent outages. So you  
7 needed to have that access to be able to clean and be able to  
8 inspect.

14:56:19 9 The other point I made there was the fact that

14:56:22 10 there were crystal -- boric acid crystal deposits. I  
11 characterized them of being of considerable depth in the center  
14:56:32 12 top area of the head. And, again, because the cleaning was not  
14:56:36 13 successful in removing them --

14 Q. I guess, did you say why the cleaning hadn't been  
15 successful in removing the deposits?

16 A. Again, it was because of the limited access. So in my  
17 mind it was -- if you will, it shouldn't have been a matter of  
18 discussion. It was clear in my mind there was a need to have  
19 those accesses in the service structure.

14:56:59 20 The other point that I made relative to that was

14:57:02 21 that, as we discussed previously in the response, FirstEnergy

14:57:08 22 has stated at the top visual inspections would not be

23 compromised due to any preexisting boric acid crystal deposits.

24 And that, of course, is not consistent with the fact there was

25 considerable boric acid at the top of the head. So I thought

1 it was important to flag to the folks -- the management that  
2 would be receiving this report that there, in fact, was boric  
3 acid at the top of the head and certainly the potential that  
4 would compromise those inspections.

5 Q. Just to be clear, you're saying that the boric acid  
6 crystal deposits that were left on the head at the end of the  
7 12th refueling outage would have what effect on the next set of  
8 inspections?

9 A. During the 13th refueling outage, assuming that those  
10 boric acid crystals remained where they were left deposited from  
11 the 12th refueling outage, you would not be able to locate or  
12 identify the less than one cubic inch, very small boric acid  
13 crystals that were indicative of a vessel head penetration  
14 crack.

15 Q. And, Mr. Gibbs, one last question: Did you characterize  
16 the access that was available through the service structure in  
17 any other way?

18 A. Yes. In that same paragraph I noted that there was  
19 severely restricted access allowed by the service structure  
20 mouse holes as they're called, those weep holes, for mechanical  
21 cleaning. Basically the next part of that paragraph is just a  
22 litany of reasons of why it's important to get access to the  
23 service structure.

24 MR. BALLANTINE: Your Honor, if I may have the  
25 Court's indulgence for just one moment.

- 14:59:08 **1** Your Honor, I have no further questions.
- 14:59:11 **2** THE COURT: Cross, Mr. Wise.
- 14:59:11 **3** - - -
- 14:59:11 **4** GREG GIBBS, CROSS-EXAMINATION
- 14:59:16 **5** BY MR. WISE:
- 14:59:16 **6** Q. Good afternoon. I'm going to ask you to do some mental
- 14:59:20 **7** gymnastics for me. I'm going to ask you to think back to the
- 14:59:24 **8** specific days during this time period six years ago.
- 9** A. **Sure.**
- 10** Q. What I want you to do, if you can, is to work with me
- 11** through what was going through your mind on specific days and at
- 14:59:35 **12** specific points, okay?
- 13** A. **I'll attempt to do so, yes.**
- 14** Q. You got the call from Mr. Moffitt, correct?
- 15** A. **That is correct.**
- 16** Q. And one of the first things you said you did is you
- 17** reviewed some of the documents that were relevant to your
- 14:59:50 **18** review?
- 14:59:51 **19** A. **That is correct.**
- 20** Q. And your review was focused on how Davis-Besse was going
- 21** to effectively implement what they needed to do in 13 RFO,
- 15:00:00 **22** right?
- 23** A. **That is correct.**
- 24** Q. One of the first documents you read was 2731, the serial
- 25** letter?

15:00:08 **1 A. Yes, the response that FirstEnergy made to the**  
11 **2 Commission with respect to the bulletin.**

**3 Q. Okay. And as you read that document the first time, and**  
15:00:16 **4 I'm speaking now before you had spoken to anybody else at the**  
**5 plant and reviewed videos, nothing jumped out at you in the**  
15:00:23 **6 serial letter as being misleading or deceptive, correct?**

15:00:27 **7 A. No, I didn't at that point -- I didn't see it as, I**  
**8 guess I'd say, misleading or deceptive. At that point I simply**  
**9 saw it as confusing.**

**10 Q. Okay. Part of the reason, I take it, that you didn't**  
**11 see it in the full light that you later saw it was at that point**  
**12 you didn't know what the history was of cleaning during 12 RFO?**

**13 A. That's correct. As I pointed out earlier, I was trying**  
**14 to paint this mental picture of what the condition of the**  
**15 reactor vessel head was, and I wasn't able to divine it from**  
**16 that document.**

**17 Q. One of the people you spoke with to figure out what**  
15:01:05 **18 happened in the cleaning was Andrew Siemaszko?**

**19 A. That is correct.**

**20 Q. Would you agree with me that it wasn't always easy to**  
**21 communicate with Mr. Siemaszko?**

**22 A. I would agree with that, and I have made statements to**  
**23 that effect before.**

**24 Q. Because he had something of an accent, correct?**

**25 A. Yeah. He had an accent. But it was just sometimes**

**1 difficult to follow Andrew's communication.**

**2** Q. Sometimes it took more discussion than it might with  
**3** someone else?

**4** A. **That's correct. That would be a fair assessment.**

**5** Q. Eventually you got to an understanding of what he had  
**6** done in 12 RFO?

**7** A. **Yes, I did.**

**8** Q. And you also viewed the videotapes?

**9** A. **Not at that time. That was on almost the last day that**  
**10 I was there.**

**11** Q. Okay. And the videotape you reviewed you said you did  
**12** with Mr. Shepherd?

15:01:48

15:01:49

**13** A. **Yes.**

**14** Q. And Mr. Daft?

**15** A. **That is correct. Mr. Daft was present, although he**  
**16 wasn't looking at the video monitor.**

**17** Q. Dave Geisen was not involved in that videotape review?

**18** A. **Dave was not there. I never saw Dave the entire time I**  
**19 was at the site.**

15:02:05

**20** Q. Once you had seen the videotape, I take it you went back  
**21** to your review of 2731, correct?

**22** A. **That's correct.**

**23** Q. Because one of the things that you wanted to do was

**24** reconcile what you now knew with what you had read in 2731?

**25** A. **That's correct.**

15:02:21 **1** Q. Before I get to that, let me ask you this: When you saw  
**2** the videotapes, you said you noted an accumulation, a

15:02:30 **3** significant accumulation of boron near the top of the head?

15:02:33 **4** A. **That's correct.**

**5** Q. And you described the two-inch gap between the  
15:02:37 **6** insulation and the top of the head?

15:02:38 **7** A. **Yes.**

**8** Q. And otherwise you saw a fairly clean head?

15:02:41 **9** A. **There were large areas of the head that were clean.**

**10 There were some minor rust stains, but the area where I was most**  
**11 concerned, vis-à-vis the requirements for the inspection, was**  
15:02:53 **12 the condition at the top of the head.**

**13** Q. And I take it that at that point you were not concerned  
**14** that Davis-Besse was running the risk of a head corrosion,  
**15** correct?

15:03:04 **16** A. **No. That is correct.**

15:03:06 **17** Q. Because at the time you were operating under, I guess,  
**18** what could be called a long-held assumption that dry boron on a  
**19** hot head was not corrosive?

**20** A. **That's correct. I did not see the issue as a safety**  
**21 concern, if you will, associated with corrosion of the head.**

**22 My personal experience at Davis-Besse during many refueling**  
15:03:33 **23 outages -- I say many; there has been at least one refueling**

15:03:37 **24 outage I recall where there was a lot of control dry mechanism**

15:03:41 **25 flange leakage that had been deposited on the head and that had**

1 been removed. This is in the '90s. And there were various  
2 effects on the head.

3 And furthermore, Crystal River, which is one of the

15:03:52 4 plants that cut the access holes that I had spoken about earlier  
5 in the service structure, it had significant quantities of boric

15:03:59 6 acid on the head in the order of -- it's been described as a

7 half a wheelbarrow or 60 pounds or something. And the reports

8 from that were that there there were no deleterious conditions.

9 There was, if I can draw a generalization, I think at that time

15:04:21 10 there were a lot of people in the industry who were of the

11 opinion, including people in the NRC, that dry boric acid

15:04:29 12 crystals, okay, weren't a significant concern. There were

13 requirements that they be removed and cleaned, okay.

15:04:39 14 Q. Let me just -- sorry to cut you off. My question was

15 only this: You were not concerned at that point that there was

15:04:45 16 corrosion going on on the head?

17 A. No, I was not. I thought it was imprudent to leave the

15:04:54 18 deposits there.

19 Q. You went back to 2731, you said, after you had learned

15:04:58 20 about the existence of boric acid on the head after 12 RFO?

21 A. That's correct.

22 Q. And concluded that the letter that FENOC had submitted,

23 in fact, did not say that the entire head had been cleaned after

15:05:11 24 12 RFO, correct?

15:05:13 25 A. I'm not sure. I never drew a conclusion about what

15:05:18 **1 that letter said. Even at the time that I wrote this response,**  
 15:05:24 **2 it was not clear to me what was actually being communicated as**  
**3 to the condition of the head. That's why I chose in this first**  
**4 paragraph to make it clear that there was -- that there were**  
 15:05:37 **5 boric acid crystal deposits on the head, that they had not been**  
 15:05:41 **6 removed, and I saw that as not being in concert with the**  
 15:05:45 **7 statement that in no way would they not compromise the**  
 15:05:49 **8 inspection.**

**9 Q. But you noted that there was language in the serial**  
**10 letter that said that the cleanings were done consistent with**  
 15:05:56 **11 ALARA, correct?**

**12 A. That's correct.**

15:05:58 **13 Q. That was the language you spoke with Mr. Ballantine**  
**14 about, correct?**

**15 A. That is correct.**

**16 Q. And that was something -- that was part of a sentence**  
**17 that put a condition on the description of the cleaning of the**  
**18 head? You would agree with that?**

15:06:09 **19 A. Well, it certainly implied that in my mind. I couldn't**

15:06:15 **20 discern that the head had been fully cleaned as a result of**  
**21 that. That's why I asked questions about it.**

**22 Q. Well, let's put it this way: I take it you would agree**  
**23 with me that the language could have been worded better?**

15:06:27 **24 A. Yeah. As I said, even at the point that I left the**

**25 site and completed this inspection, it was not clear to me what**

**1 that letter said.**

**2 Q.** But there was not a concern on your part that FENOC was  
**3** trying to mislead the NRC through 2731?

15:06:41 **4 A.** **At that point I didn't think there was any specific**  
 15:06:46 **5 attempt to mislead, although I was concerned that the actual**  
 15:06:52 **6 conditions had not been communicated.**

**7 Q.** And you did not have a concern that there were false or  
 15:06:57 **8** misleading statements in 2731?

**9 A.** **I had no -- repeat your question, please.**

**10 Q.** You did not believe there were false or misleading  
 15:07:07 **11** statements in 2731?

15:07:10 **12 A.** **I wasn't aware -- I don't believe there were false**

15:07:16 **13 statements. I certainly -- because I couldn't draw a**  
**14 conclusion as to what the condition of the head was based on the**  
 15:07:22 **15 letter, I guess you could draw a conclusion that they**  
 15:07:27 **16 potentially were misleading.**

15:07:28 **17 Q.** You wrote your report?

15:07:29 **18 A.** **Yes, I did.**

**19 Q.** Nowhere in your report do you say: Mark, you should be  
 15:07:34 **20** careful; there are statements in your letter that are false and  
 15:07:37 **21** misleading?

15:07:38 **22 A.** **I didn't say it that way.**

15:07:40 **23 Q.** If you would believe there were false or misleading  
 15:07:43 **24** statements in 2731, I take it you would have cautioned Mr.

15:07:46 **25** McLaughlin about that?

1 A. **Certainly I would have. But I also felt that I did**

2 **provide a caution to Mr. McLaughlin and others in this letter.**

3 **That caution was, look, you indicated that there -- in no way**

4 **the inspection be compromised, but, in fact, you have boric acid**

5 **on the head, and the only conclusion one could draw based on the**

6 **whole thrust of the inspection requirements is that it would**

7 **compromise the inspection.**

8 Q. Let's talk about that. You spoke with Mr. McLaughlin,

9 right?

10 A. **That's correct.**

11 Q. He was the one in charge of the inspection at 13 RFO?

12 A. **That's correct.**

13 Q. You spoke with him about the issue that would be

14 presented from preexisting boric acid?

15 A. **That is correct.**

16 Q. He spoke with you about the plans that they had already

17 put in place for 13 RFO?

18 A. **Yes.**

19 Q. You knew that they had arranged to get what is called a

20 crawler?

21 A. **That is correct.**

22 Q. And they were going to do nondestructive examination of

23 every nozzle that was obscured by boric acid?

24 A. **That was their stated intent, yes.**

25 Q. And your understanding after your conversations with Mr.

15:08:54 1 McLaughlin was that they were making contingencies to do

2 inspections of all obscured nozzles, correct?

3 A. Yes. In fact, the letter says that if there were

15:09:04 4 nozzles that were obscured, they would do inspections. And the

15:09:08 5 purpose for and the envelope of the inspections was you can

15:09:13 6 count on -- if you go to a subsequent paragraph in the letter,

7 in essence you're going to end up doing more inspections at the

8 plant.

9 Q. And you anticipated that they would end up doing more

10 inspections, correct?

11 A. Yes, I did.

12 Q. Because of what you learned about the boron on the head?

13 A. That is correct.

15:09:29 14 Q. But let me go back to my question before we got into

15 your conversation about Mr. McLaughlin. That is this: Had you

16 believed upon your reading of 2731 that FENOC was either

15:09:41 17 actively trying to mislead the NRC or was running a risk of

18 being accused of making false and misleading statements, that is

19 not something that you would have been vague about in your

20 letter, correct?

15:09:54 21 A. No.

15:09:55 22 Q. And you would have warned them?

23 THE COURT: Excuse me. Pardon me. Would you

24 please permit him to finish his answer.

15:10:03 25 A. Could you restate the question, please.

15:10:06 **1** BY MR. WISE:

06 **2** Q. I'm absolutely certain I cannot. I'll ask Ms. Spore to  
15:10:32 **3** read it back.

15:10:32 **4** (Question read back by the court reporter.)

**5** A. **That's correct.**

**6** BY MR. WISE:

**7** Q. Okay. And you did not say to Mr. McLaughlin in the  
15:10:39 **8** letter: You need to be very careful about this part of the

15:10:44 **9** letter because it is false and misleading, right?

**10** A. **I didn't say it was false and misleading, but I did say**  
15:10:50 **11 there's things you need to be careful about.**

**12** Q. You said that you were the Director of Engineering at  
15:10:55 **13** Davis-Besse in the '90s, right?

15:10:58 **14** A. **'93 and part of '94.**

**15** Q. And during that time there were these discussions about  
**16** the modification to the head, correct?

**17** A. **Yes, there were.**

**18** Q. Dave Geisen was not involved in those conversations?

**19** A. **Not to my knowledge.**

15:11:12 **20** Q. You understood that in the early '90s the plant had been  
**21** able to clean the head using pressurized water, right?

15:11:22 **22** A. **Yes, that's correct. On many occasions that was the**  
15:11:26 **23** case.

**24** Q. And had been able to clean all the boron off the head,  
15:11:29 **25** correct?

1 A. **That was my understanding.**

2 Q. And had been able to inspect with a camera to ensure  
3 that all the boron had been cleaned, correct?

15:11:36 4 A. **I believe so, yes.**

15:11:38 5 Q. The size of the mouse holes made the job more difficult,  
6 fair to say?

7 A. **Yes.**

8 Q. But not impossible?

9 A. **That's correct.**

15:11:48 10 Q. Now, you also described this September 11th meeting that  
11 involved the project team and many other people discussing the  
15:11:58 12 topic of the upcoming inspection, right?

13 A. **Uh-huh. Yes, I did.**

15:12:04 14 Q. Mr. Geisen wasn't at that meeting, correct?

15:12:10 15 A. **I do not know. There were a large number of people at  
16 that meeting. I couldn't tell you today who was there and who  
15:12:16 17 wasn't there.**

15:12:36 18 Q. Mr. Gibbs, I'm going to show you what I've marked  
19 Defendant's Exhibit 14 for identification?

15:12:44 20 THE COURT: 15.

15:12:46 21 MR. WISE: Thank you, Your Honor.

15:13:00 22 BY MR. WISE:

15:13:00 23 Q. Do you recognize Defendant's 15 as a set of minutes  
24 covering that meeting?

15:13:07 25 A. **That's what it appears to be, yes.**

1 Q. Can you take a look at the list of attendees which is at  
2 the top of the second page?

15:13:20

3 A. **Yes.**

4 Q. Does that refresh your recollection as to whether Mr.  
5 Geisen was present at that meeting?

15:13:26

6 A. **Well, Mr. Geisen's name is not on here, that's correct.**

7 Q. One of the topics of discussion at that meeting was this  
8 proposal to cut the holes in the service structure?

15:13:34

15:13:38

9 A. **Yes, there was a lively discussion about that.**

10 Q. By "lively" I take it you mean there were some folks

15:13:43

11 advocating for it and some folks who were opposing it?

12 A. **That is correct.**

13 Q. The people who were opposing it generally were the folks  
14 that were involved with running the outage, correct?

15 A. **Mostly outage management folks, yes.**

16 Q. And you did not see their opposition to the modification  
17 as ill-motivated, did you?

15:14:01

18 A. **Well, not from their perspective. From my perspective**

15:14:13

19 **I thought any decision to not cut the holes in the service**  
20 **structure was ill-motivated.**

21 Q. You didn't agree with their position?

22 A. **That is correct.**

23 Q. But you didn't think that they were taking that position

15:14:25

24 for reasons that were improper, correct?

25 A. **No. I saw it simply as challenging engineering, and**

**1 the other folks who were interested in cutting the holes in the  
2 service structure, from an outage schedule perspective, trying  
3 to hold their feet to the fire, if you will, that this is a  
4 clear and present need.**

15:14:46 **5 Q.** You also spoke, you said, through the week with people  
**6** who were relevant to your analysis?

15:14:53 **7 A. Yes.**

**8 Q.** You spoke with Mr. Siemaszko?

**9 A. Yes, I did.**

**10 Q.** And Mr. Goyal?

**11 A. Yes, I did.**

**12 Q.** And Mr. Daft?

**13 A. Yes, I did.**

**14 Q.** And Mr. McLaughlin?

**15 A. Yes.**

15:15:02 **16 Q.** And you said, I think, before that you did not speak  
**17** with Dave Geisen that entire week?

15:15:06 **18 A. I did not. And I don't know if Dave was there or  
19 wasn't there, but I did not see him that week. And the only  
20 time I did attempt to talk with Dave was when I delivered the  
21 report, and he was not available at that time.**

15:15:24 **22 Q.** And you delivered the report to him as a courtesy, I  
**23** think you said?

15:15:28 **24 A. Yes. I thought it was important that he have the  
25 report because there were some key activities in it that were**

1 related to activities in his department. One, even the cutting  
2 of the holes would require certain stress analyses to be  
3 performed, okay, on the part of Mr. Prason Goyal to review the  
4 information associated with the gaps and that sort of thing.  
5 So there were people in his department that had activities that  
6 were discussed in this letter. And because I did that, I  
7 thought it was appropriate that he, being the management, get a  
8 copy.

15:16:01

9 Q. And you left it for him as a courtesy?

10 A. Yes.

15:16:05

11 Q. You followed up -- you said you also were unable to  
12 speak with Steve Moffitt, correct?

13 A. That is correct.

14 Q. But you followed up with Mr. Moffitt?

15 A. I did.

16 Q. In fact, you called him a number of times over the next  
17 couple weeks?

15:16:18

18 A. I made many attempts to get a hold of Mr. Moffitt, yes,  
19 that's correct. That is correct.

20 Q. Eventually you got him on the phone?

21 A. Eventually he returned my call, yes.

22 Q. And you spoke with him?

23 A. Yes, I did.

24 Q. And you spoke with him to make sure that he had gotten  
25 the report?

1 A. **Yes.**

2 Q. And read the report?

3 A. **Yes.**

4 Q. And understood what you were talking about?

5 A. **That is correct.**

6 Q. You did not ever try to follow up with Mr. Geisen?

15:16:43 7 A. **No. I did not try to follow up with Mr. Geisen. Mr.**

15:16:48 8 **Moffitt was the individual who hired me. He is also the most**

9 **senior manager associated with this activity. And I thought it**

10 **important that he understand what was in this report. In fact,**

11 **I left him a note that I thought he should review the videotapes**

12 **of the particular post cleaning videotapes so he could picture**

13 **himself the condition of the head.**

14 Q. This is Mr. Moffitt you're talking about?

15 A. **That is correct.**

16 Q. And you did not follow up with Mr. Geisen?

17 A. **No. Again, I had no contact with Mr. Geisen during**

18 **that inspection.**

15:17:22 19 MR. WISE: Thank you, Mr. Gibbs.

15:17:28 20 THE COURT: Mr. Conroy?

21 MR. CONROY: Thank you, Your Honor.

15:17:39 22 - - -

15:17:39 23 GREG GIBBS, CROSS-EXAMINATION

24 BY MR. CONROY:

25 Q. Mr. Gibbs, good afternoon. I'm John Conroy on behalf

1 of Rod Cook. Speaking of people you did not talk to --

2 A. **Yes.**

15:17:46

3 Q. -- you know Mr. Cook?

4 A. **I do know Mr. Cook.**

5 Q. Have known him for a number of years?

15:17:51

6 A. **That is correct.**

7 Q. You worked together with him at Davis-Besse; isn't that  
8 right?

9 A. **Yes. He worked in the licensing department at  
10 Davis-Besse.**

11 Q. He was in the Regulatory Affairs group at that time?

12 A. **That's correct.**

13 Q. Licensing is part of it?

15:18:03

14 A. **That's correct.**

15 Q. You were not in that group?

15:18:06

16 A. **Was not.**

17 Q. But you did have occasion to have interaction

15:18:10

18 professionally with Mr. Cook?

15:18:13

19 A. **Yes, I did.**

20 Q. And you knew him at that time, I take it, as a reliable,  
21 conscientious engineer?

22 A. **Yes. I believe that's a correct statement.**

15:18:25

23 Q. And you don't know of anything other than what we're

15:18:28

24 here for today that would have changed your mind in the

25 intervening years, do you?

1 A. **No, I do not.**

32 2 Q. Now, you did not have any contact with Mr. Cook with  
3 regard to your document of September of 2001?

15:18:42 4 A. **Not with respect to the report itself, no. In the  
5 course of performing the review, I did talk to -- with Mr. Cook  
6 and Mr. Miller, however briefly.**

7 Q. However briefly?

8 A. **Yes.**

15:18:58 9 Q. About what?

10 A. **I had a question with respect to what they would do if**

15:19:05 11 **they found boric acid of a lesser amount than what was**

15:19:12 12 **indicative at the Oconee units. The response to the bulletin,**

13 **FirstEnergy's response to the bulletin, indicated that their**

15:19:22 14 **inspection would be done by comparative analysis, looking at the**

15:19:27 15 **videos, pictures from the evidence at Oconee, and then comparing**

16 **that to what they saw. And talked to Mr. Miller to understand**

15:19:38 17 **what the logic they were supposed to use was, relative to**

15:19:42 18 **applying the criteria that they had indicated.**

19 Q. And did you talk to Mr. Miller?

20 A. **I talked with Mr. Miller. Mr. Miller, Mr. Cook were in**

21 **close proximity. Mr. Miller got me a copy of what their**

15:19:56 22 **decision logic was associated with that inspection. And that**

23 **was about the extent of the conversation, as I recall.**

24 Q. So it didn't have anything to do with the concerns that

25 you expressed in your letter of September?

15:20:11 **1 A. No, it did not. At that time I hadn't composed the**  
**2 letter, of course. And Mr. Cook was not a member of the**  
**3 project team.**

**4 Q. He was not a member of the project team. That was**  
15:20:24 **5 other people entirely?**

15:20:26 **6 A. Yes. There were other people in the licensing group or**  
**7 the Regulatory Affairs group; specifically Mr. Frank Kennedy,**  
15:20:36 **8 who was on the project team.**

15:20:40 **9 Q. And Frank Kennedy was an employee of Davis-Besse, to**  
**10 your knowledge, was he not?**

15:20:45 **11 A. Yes.**

**12 Q. Mr. Cook was not, was he?**

**13 A. I believe Mr. Cook was there as a contractor.**

**14 Q. Is that how you knew him when you worked with him in the**  
15:20:54 **15 '80s?**

**16 A. Yeah. My recollection is that all my contacts with Mr.**  
**17 Cook were he was a contractor, whether it be at Davis-Besse or**  
15:21:05 **18 some other facility.**

15:21:08 **19 Q. And I want to discuss with you your -- some of your**  
**20 testimony with regard to boric acid being left on the head of**  
**21 the reactor --**

15:21:23 **22 A. Yes.**

15:21:24 **23 Q. -- after a refueling outage.**

**24 A. Yes.**

15:21:28 **25 Q. Are you familiar or were you familiar when you were the**

**1** Director of Engineering with Davis-Besse's Boric Acid Corrosion

**2** Control Procedure?

15:21:41 **3** **A. No, not specifically.**

15:21:44 **4** **Q.** Do you know as a result of your work in engineering and

**5** in the nuclear industry the difference between the term "should"

15:21:58 **6** and the term "shall" when used in a regulation?

15:22:04 **7** **A. Well, yes.**

15:22:07 **8** **Q.** What is it?

15:22:08 **9** **A. Shall means it will be done. Should is advisory.**

**10** **However, I will tell you that in my experience as a nuclear**

15:22:17 **11** **professional, when there were issues of safety or other concern,**

15:22:23 **12** **we tried not to distinguish between those two statements.**

**13** **Q.** But if there was no safety concern, an engineering

15:22:31 **14** judgment could be made that would distinguish between those two

**15** terms; would it not?

15:22:36 **16** **A. That's possible, yes.**

**17** **Q.** Do you know the meaning of the term dispositioning in

15:22:42 **18** terms of what are known as Condition Reports?

**19** **A. Yes.**

15:22:50 **20** **Q.** If a Condition Report was written that indicated that

**21** the condition of the reactor vessel head was as-left -- after

15:23:06 **22** cleaning -- with boric acid on it, and a supervisor, in

15:23:14 **23** reviewing the Condition Report written up to document that

**24** condition, approved the restart of the reactor while there was

**25** still boric acid on the head, would it be your position that

1 that restart violated the Boric Acid Corrosion Control

2 Procedure?

3 A. I -- again, I say I wasn't that familiar with the

4 procedure; however, it did violate NRC requirements. There's a

5 requirement in 10 CFR part 50, 55 AA that implements the

6 requirements of the ASM Code. Section 11 of that code requires

7 if you find boric acid on components that boric acid is to be

8 removed. Okay.

9 Q. Do you -- are you familiar with the Boric Acid Corrosion

10 Control Procedure that is in effect at Davis-Besse today?

11 A. No, I'm not.

12 Q. If I told you that it did not require removing boric

13 acid from all components where it is found, would you say that

14 is incorrect?

15 A. I would certainly want to investigate that. I'm not

16 sure that the basis of that would be well-founded.

17 Q. And you don't know what the Boric Acid Corrosion Control

18 Procedure permitted or allowed an engineer to do in terms of

19 dispositioning a finding of boric acid on the head back when you

20 were Director of Engineering?

21 A. No, I just don't recall that level of detail.

22 Q. You indicated that you were concerned that inspection

23 ports be installed back when you were Director of Engineering?

24 A. That's correct.

25 Q. These are inspection ports on the reactor pressure head?

1 A. **No, not on the head.**

2 Q. I'm sorry, on the service structure?

3 A. **On the service structure, yes.**

4 Q. That would allow viewing of the head and accessibility

15:25:23 5 of the head for cleaning?

6 A. **That is correct.**

7 Q. And if those were not installed -- and I take it they

8 were not when you were there?

9 A. **Yes.**

10 Q. -- would you expect design engineering to continue to be

15:25:35 11 concerned about them in the aftermath?

15:25:39 12 A. **I believe so. There was clear evidence in the industry**

13 **that the problems associated with cracking of vessel head**

15:25:48 14 **penetration nozzles was a developing issue, and as a consequence**

15 **there was a lot of industry -- what we call industry operating**

16 **experience. In fact, all B&W units had access to their service**

15:26:02 17 **structures for the purpose of being able to inspect.**

15:26:06 18 Q. So it would not surprise you if a design engineer such

19 as Mr. Prason Goyal continued to pursue actively the

20 installation of inspection ports on that service structure?

15:26:21 21 A. **I would say that would be entirely appropriate,**

15:26:24 22 **particularly given the long time span from initial**

15:26:28 23 **identification.**

15:26:29 24 MR. CONROY: Thank you. Nothing further, Your

15:26:31 25 Honor.

15:26:31 1 THE COURT: Mr. Ballantine, redirect?

35 2 MR. BALLANTINE: Thank you, Your Honor.

15:26:39 3 - - -

15:26:39 4 GREG GIBBS, REDIRECT EXAMINATION

15:26:48 5 BY MR. BALLANTINE:

15:26:48 6 Q. Mr. Gibbs, I just wanted to understand. We've been  
7 talking about these access ports, and you've been talking about  
8 access for cleaning boric acid from the surface of the head.

9 A. **As well as inspection.**

15:27:05 10 Q. As well as inspection?

11 A. **Yes.**

15:27:07 12 Q. That was my question: Is that another purpose that the  
13 inspection -- that the ports are used for?

15:27:13 14 And I believe Mr. Conroy was asking you some  
15:27:16 15 questions. You indicated that all B&W reactors of this design  
16 had had those service structures put in?

17 A. **That was my understanding at the time of the inspection,**  
15:27:26 18 **that Davis-Besse was the only plant, the only B&W plant that had**  
19 **not installed those access covers -- I'm sorry, at the time I**  
20 **did the review, okay.**

15:27:47 21 Q. You've testified a bit about Davis-Besse's response to  
15:27:51 22 Bulletin 2001-01.

23 A. **Yes.**

24 Q. And we've looked at the serial letter 2731 that's  
25 Government's Exhibit 60.

- 15:28:03 **1** A. **Yes.**
- 15:28:05 **2** Q. Were you aware of any other documents that Davis-Besse
- 15:28:09 **3** submitted to the NRC in response to the bulletin?
- 15:28:14 **4** A. **No. If there were any, I wasn't aware of them at the**
- 5 time I did this inspection, this review.**
- 6** Q. As far as you knew, this was their only response to the
- 7** NRC?
- 8** A. **What I did understand is there was to be a supplemental**
- 9 response. That was stated within the body of this letter.**
- 15:28:34 **10** Q. And what was your understanding of when that would be
- 15:28:38 **11** submitted?
- 15:28:39 **12** A. **I think there -- there's a specific date in here. I**
- 13 just happened to turn to it. The FENOC proposal is to provide**
- 14 a final response by January 29, 2002.**
- 15:28:59 **15** Q. Do you recall that Mr. Wise was asking you questions
- 16** about the past practice with respect to leaving boric acid on
- 17** the head?
- 18** A. **Yes.**
- 19** Q. And he had asked you some questions about whether that
- 20** was a concern from the perspective of corrosion?
- 15:29:16 **21** A. **Yes, he did.**
- 15:29:18 **22** Q. What specifically were you concerned about with respect
- 23** to boric acid left on the head of the reactor in light of the
- 24** work that you were doing there?
- 15:29:31 **25** A. **Well, my first -- my first concern with respect to the**

1 work was, as I stated earlier, the high probability of masking  
2 the ability to find the small deposits indicative of nozzle  
3 penetration leak. I also, when I was reviewing the tapes with  
4 Mr. Shepherd, for example, at the end of reviewing those tapes,  
5 we both commented, like, gee --

15:29:47  
15:29:58  
15:30:00 6 MR. HIBEY: Objection.

15:30:03 7 MR. WISE: Objection, hearsay.

15:30:06 8 THE COURT: You can only testify to your remarks,  
9 not a third person.

15:30:11 10 A. Very well. My remarks to Mr. Shepherd were, gee, that  
11 is -- I'm concerned about the fact that that much boric acid was  
12 left on the head. I felt it was imprudent. I didn't raise it  
13 as a corrosion concern because I, like several others at the  
14 time, had the understanding that unless that boric acid were  
15 wet, as long as it was dry, it would not be a significant  
16 corrosion concern.

15:30:31  
15:30:36  
17 BY MR. BALLANTINE:

18 Q. But going back to the first part of your answer with  
19 respect to masking signs of nozzle cracking --

20 A. Yes.

21 Q. Can you review for the jury what the concern was  
15:30:58 22 with that, if a nozzle were to crack? What was the concern if  
23 the nozzle were to crack? What was the concern?

24 A. Well, if a nozzle cracked, and leakage propagated up the  
15:31:08 25 anulus between the vessel head penetration, the nozzle and the

1 hole of the vessel, that leakage would have flowed upward, as it  
2 would have, along the access to the top surface of the reactor  
3 vessel head, it would leave these very small deposits of boric  
15:31:26 4 acid crystals on the order, from the Oconee experience, of about  
5 a cubic inch is what was reported and photographed. Okay. So  
15:31:37 6 if you can imagine, here's a nozzle that's surrounded by boric  
15:31:44 7 acid at the top of the head up to the insulation. There's no  
8 way they're going to be able to discern that these small  
15:31:52 9 deposits of boric acid crystals even exist because the area at  
10 the time that you inspect it is already fully covered with boric  
15:32:02 11 acid.

15:32:02 12 Q. And that would impede your ability to detect cracks?

15:32:06 13 A. It would impede your ability to detect cracks visually,  
14 which by the bulletin was the first primary method of  
15 inspection.

15:32:15 16 Q. What was the concern if cracks -- was there a concern if  
17 cracks went undetected?

15:32:21 18 A. Well, yes. The concern if cracks went undetected, if  
19 there were circumferential cracks -- the whole purpose of the  
20 bulletin was to make sure people had procedures and processes in  
21 place to detect these cracks because if a circumferential crack  
22 were to go all the way around the periphery of the nozzle, there  
15:32:42 23 was the potential that that nozzle could be ejected from the  
15:32:45 24 reactor vessel.

15:32:48 25 Q. Also when Mr. Wise was asking you some questions, he was

1 asking you about past practice, perhaps the practice when you  
2 were at Davis-Besse of doing inspections through the mouse  
3 holes. Do you recall that testimony?

4 A. Yes.

5 Q. And you indicated that, in response to his question, the  
6 size of the mouse holes make inspection difficult?

7 A. That's correct.

15:33:16 8 Q. Is that -- as you read the bulletin, is that the kind of  
15:33:21 9 impediment that the NRC was asking for?

10 A. I think it's clear that it was. There was much  
11 discussion in the Oconee report and the NRC bulletin and in the  
15:33:32 12 EPRI documents about the need to have clear access both for the  
15:33:38 13 purpose of inspection and for cleaning. It was that very  
15:33:42 14 limitation when I was the director at Davis-Besse that drove us  
15:33:47 15 towards the initial decision to consider cutting the access  
15:33:51 16 holes in the service structure.

15:33:59 17 Q. With respect to the videos that you reviewed, they were  
15:34:04 18 all the as-left after the 2000 inspection videos; is that right?

19 A. Right. I only reviewed one video. The video I asked  
20 for was the video -- the post-cleaning or the video that was  
21 taken after the vessel head had been cleaned and would be the  
22 video that would represent the condition that the head would  
23 have been left in at the point they started up the reactor for  
24 the next operating cycle.

25 Q. And I guess by definition would the precleaning video

15:34:36 **1** show worse conditions?

15:34:39 **2** **A. Well, certainly it would have because they cleaned large**  
**3 amounts of boric acid off the head during that refueling outage.**

15:34:48 **4** **Q.** Mr. Wise asked you some questions about whether you

15:34:51 **5** thought in reviewing the materials you reviewed, the videos,

**6** talking to people, documents, whether you thought that anybody

15:34:59 **7** at Davis-Besse was intentionally hiding information from the

**8** NRC. Do you remember those questions?

15:35:04 **9** **A. Yes, I do.**

15:35:05 **10** **Q.** But you didn't see the precleaning video, did you?

15:35:09 **11** **A. I did not.**

15:35:10 **12** **Q.** So -- I'll just leave it at that.

15:35:17 **13** And finally, what is your understanding of the

15:35:20 **14** standard for providing information to the NRC, the regulatory

15:35:25 **15** standard?

**16** **A. There are two standards. One has to do with misleading**

**17** or inaccurate or incomplete information. And then there's

**18** another standard associated with -- it's not coming to me right

**19** now. It's, like, malpractice, if you will. One of those is,

**20** I think, in 10 CFR 50.9, and there's another one that's in

**21** another part of the CFR that I don't remember the citation for

15:35:58 **22** right now.

**23** **Q.** What's your understanding of the 50.9 standard?

**24** **A. Well, basically the responses to these sorts of letters**

**25** are done under oath and affirmation. If you look at the back

15:36:12 **1** of -- at the forwarding part of this letter, the vice-president  
 ● **2** of the site signs that the statements set forth herein are true  
 15:36:28 **3** and correct to the best of my knowledge, information, and  
 15:36:31 **4** belief. If you were to sign such a document knowing full well  
**5** that there was either misleading or inaccurate information, you  
**6** would be violating the citation relative to the code of federal  
 15:36:51 **7** regulations.

**8** Q. Do you know whether there's a requirement that  
 15:36:53 **9** information be complete?

**10** A. Yes, there is that same requirement, that it be complete  
 15:36:57 **11** and accurate.

15:36:59 **12** Q. And with respect to the area that we talked about in  
 ● **13** terms of the condition of the head as it was left, and I believe  
 15:37:10 **14** Mr. Wise asked you questions about -- I don't have it right in  
 15:37:18 **15** front of me, but the ALARA questions.

**16** A. Yes.

15:37:21 **17** Q. Did that, in your mind, give a complete picture of the  
**18** as-left condition of the reactor vessel head in 2000?

**19** A. No. As I stated earlier, it caused me to question what  
**20** the condition of the head was.

**21** MR. BALLANTINE: Thank you. I have no further  
**22** questions.

15:37:38 **23** MR. WISE: Nothing, Your Honor.

15:37:40 **24** MR. CONROY: Nothing, Your Honor.

**25** THE COURT: Thank you. You may step down.

1 Ladies and gentlemen, at this time we'll take our  
 2 mid-afternoon -- a little later than mid-afternoon break for 15  
 3 minutes. Please remember my previous instructions to you not  
 4 to discuss this case among yourselves nor with anyone else, nor  
 5 permit anyone else to discuss it with you. Do not make your  
 6 mind up on the ultimate questions you will decide at the end of  
 7 the case.

15:43:43 8 (Recess taken.)

15:57:07 9 MR. STICKAN: Thank you, Your Honor. The  
 10 government would call Mr. Prasoan Goyal.

15:57:13 11 (The witness was sworn by the clerk.)

15:57:42 12 - - -

15:57:42 13 PRASOON GOYAL, DIRECT EXAMINATION

15:57:56 14 BY MR. STICKAN:

15:57:56 15 Q. Would you please state your full name and spell your  
 16 last name for the record?

15:58:00 17 A. **Last name is Goyal, G-o-y-a-l. First name is Prasoan,**  
 18 **P-r-a-s-o-o-n.**

15:58:13 19 Q. Thank you. Can you tell us how are you currently  
 15:58:17 20 employed?

21 A. **Yes, I am.**

22 Q. Where are you currently employed?

23 A. **I'm at Bechtel Corporation.**

15:58:27 24 Q. The name of the company you work for?

25 A. **Bechtel, B-e-c-h-t-e-l.**