

RAS C-93

Official Transcript of Proceedings
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

December 8, 2008 (9:30am)

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Title: Hearing ITMO David Geisen

Docket Number: IA-050-052; ASLB No. 06-845-01-EA

Location: Rockville, Maryland

Date: Monday, December 8, 2008

Work Order No.: NRC-2569

Pages 793-1005

NEAL R. GROSS AND CO., INC.
Court Reporters and Transcribers
1323 Rhode Island Avenue, N.W.
Washington, D.C. 20005
(202) 234-4433

TEMPLATE = SECY-032

DS 03

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

+ + + + +

ATOMIC SAFETY AND LICENSING BOARD PANEL

HEARING

In the Matter of: : Docket No. IA-050-052
DAVID GEISEN : ASLB No. 06-845-01-EA

Monday,
December 8, 2008

The above-entitled hearing was
convened, pursuant to notice, at 9:30 a.m.

BEFORE:

MICHAEL C. FARRAR, Administrative Judge, Chair

E. ROY HAWKENS, Administrative Judge

NICHOLAS G. TRIKOUROS, Administrative Judge

NEAL R. GROSS
COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

APPEARANCES:

On Behalf of David Geisen:

ANDREW T. WISE, Esquire
RICHARD HIBEY, ESQ.
of: Miller & Chevalier, Chartered
655 15th Street, N.W.
Suite 900
Washington, D.C. 20005
(202) 626-5800

On Behalf of the Nuclear Regulatory Commission:

LISA B. CLARK, Esquire;
CATHERINE MARCO, Esquire;
SHAHRAM GHASEMIAN, Esquire; and
KIMBERLY A. SEXTON, Esquire
of: Office of the General Counsel
U.S. Nuclear Regulatory Commission
Mail Stop - O-15 D21
Washington, D.C. 20555-0001

NEAL R. GROSS
COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

TABLE OF CONTENTS

<u>WITNESS</u>	<u>DIRECT</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RECROSS</u>
Melvin Holmberg	830	945	972 988	984

<u>EXHIBIT NO.</u>	<u>MARK</u>	<u>RECD</u>
<u>Staff</u>		
1-72	825	826
74,75	825	827
77-83	825	827

NEAL R. GROSS
 COURT REPORTERS AND TRANSCRIBERS
 1323 RHODE ISLAND AVE., N.W.
 WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

P R O C E E D I N G S

(9:30 a.m.)

1
2
3 JUDGE FARRAR: We're here this morning and
4 much of this week to hear David Geisen's challenge to
5 an enforcement order issued by the NRC Staff to ban
6 him from employment in the regulated nuclear industry
7 for five years based on statements made in the several
8 months preceding the reactor head corrosion incident
9 at the Davis-Besse Nuclear Power Plant in northwestern
10 Ohio.

11 I'm Mike Farrar, the Chairman of the
12 Licensing Board. On my right is Judge Roy Hawkens.
13 On my left is Judge Nick Trikouros. Judge Hawkens and
14 I are lawyers. Judge Trikouros is a nuclear engineer
15 familiar with plant design and operations.

16 Would counsel identify themselves, please?
17 Staff.

18 MS. CLARK: This is Lisa Clark for the NRC
19 Staff. With me today is Kimberly Sexton and Shahram
20 Ghasemian.

21 JUDGE FARRAR: All right. Thank you.

22 For Mr. Geisen.

23 MR. WISE: Good morning, Your Honor.
24 Andrew Wise and Richard Hibey for Mr. Geisen.

25 JUDGE FARRAR: And that's Mr. Geisen with

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 you?

2 MR. WISE: It is.

3 JUDGE FARRAR: Thank you.

4 I want to before we start recognize the
5 heroic efforts by counsel for both sides after the
6 case restarted following the criminal case and the
7 breakdown of settlement negotiations. I think, Ms.
8 Clark, you sent us an E-mail on October 20th, and we
9 restarted the case then, and I know how much work all
10 of you have put into it to get us here today, and we
11 appreciate that.

12 Today's proceeding is being carried on the
13 internal broadband and, in addition, as part of an
14 agency pilot project to determine how best to provide
15 the public with more information about our
16 proceedings, the first day is being Webstreamed on the
17 Internet.

18 We welcome all of you who are watching
19 that Webstream with its real time closed captioning.

20 Mr. Geisen, I'm sure your lawyers have
21 explained our role to you, but to be sure it's clear
22 and for the benefit of those watching who may not have
23 that awareness, Licensing Boards are the agency's
24 independent judicial arm. When I say "independent,"
25 I mean independent of the NRC Staff. We all share the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealgross.com

1 same headquarters complex of buildings, but they don't
2 work for us; we don't work for them. And we're
3 independent of any pressure from the five presidential
4 appointed Commissioners who run the agency. Our pay,
5 benefits, and tenure in no way depend on the nature of
6 our decisions. We don't talk to them about our cases,
7 get instructions from them or seek their permission
8 for anything.

9 We are bound by the regulations just like
10 we're bound by the laws of Congress. We're bound by
11 their decisions, and they act as our Supreme Court.
12 They can affirm or reverse our decisions as they see
13 fit, but that's done in an open appellate process.

14 So the decision we make will be ours based
15 on our evaluation of the facts and analysis of the
16 law.

17 The order of business this morning is
18 first we'll have the opening statements of the
19 lawyers. Those are not evidence, but just what they
20 hope to prove. Then we'll do some housekeeping
21 matters, including introducing the exhibits that the
22 parties have agreed can come in. We'll do most of
23 that at the beginning of the case so as to move more
24 smoothly at the end or throughout the case.

25 In terms of exhibits, let me also

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 introduce our law clerk, Joanna Thibault. She helps
2 us with research and analysis, but will also be
3 functioning as the court clerk for purposes of the
4 exhibits.

5 After we do the exhibits, the Staff will
6 call its first witness:

7 Just so the lawyers are clear, at the end
8 of the trial we'll have closing arguments, what they
9 think the evidence showed. We may ask some questions
10 at that time. If you can't answer them then, that
11 will be a good clue for what to address in your post
12 trial briefs. Unlike a jury trial, there's no verdict
13 at the end of the case. Instead, the parties file
14 briefs, including answering any questions we pose, and
15 there's a written decision down the road, which would
16 be not until after the first of the year.

17 Any preliminary matters before we go ahead
18 with opening statements? Mr. Wise?

19 MR. WISE: We only have one, Judge, and it
20 is essentially the rule on witnesses, which I think
21 the Court would normally invoke, but with the Webcast
22 procedure I just want to make sure that we don't have
23 a potential witness down the line who's watching.

24 JUDGE FARRAR: Okay.

25 MR. WISE: I imagine that has been

1 explained.

2 JUDGE FARRAR: So you do want to invoke
3 the rule?

4 MR. WISE: I do. I do.

5 JUDGE FARRAR: Okay. Staff?

6 MS. CLARK: We have not advised our
7 witnesses that they cannot observe the proceeding. At
8 this point in time, I would expect that it's very
9 likely that some of them would be.

10 JUDGE FARRAR: All right. Then for the
11 purpose of those watching, the rule we're talking
12 about is the rule that witnesses who have not yet
13 testified in a case, you can insist that they not
14 watch the previous witnesses. That is, of course, for
15 the purpose that people can't match up their stories
16 to fit what went before.

17 If Mr. Geisen wants to invoke this rule,
18 then your first witness I presume is here.

19 MS. CLARK: Yes, Mr. Holmberg is here.
20 The fifth witness wouldn't matter, or would it?

21 MR. WISE: I actually think it does, Your
22 Honor to the extent that there may be things said
23 potentially in opening that are relevant to that
24 witness' testimony.

25 JUDGE FARRAR: Okay. Hold on a second.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 (Pause in proceedings; the Board
2 conferred.)

3 JUDGE FARRAR: Mr. Wise, we're going to
4 grant your motion, and make sure given the broadband
5 and Webstream circumstances, which an ordinary court
6 might not have, why don't we take a brief recess, Ms.
7 Clark, and if you all can call the other four or have
8 your people call the other four once you've come back
9 and established that, we will resume.

10 MS. CLARK: Very well.

11 (Whereupon, the foregoing matter went off
12 the record at 9:37 a.m. and went back on
13 the record at 9:44 a.m.)

14 JUDGE FARRAR: Ms. Clark, you tried to
15 contact your witnesses?

16 MS. CLARK: We were able to reach each of
17 our witnesses and advise them not to watch any of the
18 proceeding.

19 JUDGE FARRAR: So that's Mr. or Dr. Hiser,
20 Mr. Martin, Mr. Goyal and Mr. O'Brien?

21 MS. CLARK: Yes.

22 JUDGE FARRAR: Okay. Thank you. I
23 appreciate you doing that. Thank you.

24 Then let's move right into the opening
25 statements. Ms. Clark.

1 MS. CLARK: Thank you.

2 Excuse us for a moment. We're just
3 setting up our computer here.

4 (Pause in proceedings.)

5 MS. CLARK: Now that we have that taken
6 care of, good morning. Today we're going to hear
7 about a case which concerns the pursuit of an agenda
8 to persuade the NRC that no potential safety problem
9 existed at Davis-Besse. To accomplish this agenda,
10 the NRC was repeatedly provided misleading and
11 incomplete factual information about the conditions at
12 the reactor.

13 This information responded to an NRC
14 bulletin alerting licensees that the NRC had
15 identified a significant safety issue. In this case,
16 the safety concern was about the structural integrity
17 of the reactor vessel head. Instead of a complete and
18 accurate response, the NRC was presented with
19 misleading and incomplete factual presentations
20 designed to persuade the agency not to require a
21 costly, unscheduled outage.

22 This meant that the NRC's regulatory
23 decisions were based on a false picture about the
24 conditions of the plant. This cannot be tolerated.
25 When the NRC asks for factual information, licensees

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 cannot be allowed to substitute misleading
2 presentations designed to persuade the NRC that no
3 safety problem exists.

4 The NRC must be given complete and
5 accurate factual information in order to reach its own
6 independent safety judgment.

7 The responsibility for providing complete
8 and accurate information rests with individuals as
9 well as licensees. Individuals working in the nuclear
10 industry are prohibited from providing incomplete or
11 inaccurate information to the NRC by our regulations.
12 This is a critical component of our regulatory
13 process. Individuals must know that they are
14 personally responsible for the information they
15 provide to the NRC.

16 This bulletin was prompted by concerns
17 about cracking of control rod drive nozzles at
18 pressure water reactors like Davis-Besse. And now I'd
19 like to focus in on a picture of our model here, if we
20 could.

21 This is a model of a reactor head as the
22 one that was at Davis-Besse. The control rod drives
23 are depicted here. Cracking of these rods can occur
24 where they contact the vessel head. These cracks
25 allow boric acid solution, which is contained within

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 the vessel head, to leak out into any gap between the
2 nozzle and the head.

3 This liquid will travel up to the top of
4 the head where it emerges at the nozzle penetration
5 interface. When that liquid emerges, the water
6 flashes the steam because of the high temperature of
7 the head. This leaves behind a dry boron deposit.

8 This phenomenon was well known throughout
9 the industry and within the NRC. However, it was
10 believed that these nozzle indications, these boron
11 deposits would be seen well before any significant
12 cracking occurred.

13 New concerns about nozzle cracking were
14 raised by the discovery of large circumferential
15 cracks at reactors where only small boron deposits
16 were observed. This photograph shows you the type of
17 deposits that were seen. You can see from this
18 picture how small they were. Some measured less than
19 one cubic inch. Because of their appearance, they are
20 referred to as popcorn type deposits.

21 This alerted the NRC to two things:
22 first, that it was important to have a thorough
23 inspection of all the nozzles in order to see these
24 small deposits; and, secondly, it was important to
25 have a clean head because boron from other sources

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 could cover and obscure these small indications.

2 The bulletin asked these licensees to
3 describe all of their nozzle and head inspections that
4 had been performed in the previous four years. The
5 bulletin asked specifically for their inspection
6 findings and a description of any reason that the bare
7 metal head could not be seen in the inspections.

8 At the time the bulletin was issued, Mr.
9 Geisen was very familiar with the nozzle cracking
10 issue. He also knew that the most recent head
11 inspection at Davis-Besse had found substantial boron
12 on the head.

13 We will show you the same information he
14 received about the reactor head before the bulletin.
15 You will see that it was obvious from that information
16 that Davis-Besse had a large amount of boron on the
17 head and that these large boron deposits would cover
18 and obscure these small indications of boron leakage.

19 In order to understand the state of his
20 knowledge, it's important to know when he received
21 this information. Mr. Geisen was promoted to design
22 basis engineering manager in March of 2000. When he
23 was promoted to that position, he also became a member
24 of the B&W Owners Group Steering Committee. A
25 significant focus of that committee at the time was

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 nozzle cracking, and the group received briefings on
2 these popcorn type indications.

3 Mr. Geisen was called upon to give
4 briefings to upper management at Davis-Besse on this
5 issue.

6 Davis-Besse entered its twelfth refueling
7 outage a month later, in April of 2000. During that
8 outage, Mr. Geisen relieved another manager in Outage
9 Central. This is where all of the outage activities
10 were coordinated. While in Outage Central, he saw two
11 condition reports describing large boron deposits on
12 the head, and he also saw a photograph very much like
13 this one. These reports told him that large
14 accumulations of boron were found around nozzle
15 penetrations, and in this picture he saw red boron
16 streaming through the weep holes at the bottom of the
17 head. The red color of this boron told him that
18 corrosion was occurring.

19 You will hear testimony that the
20 conditions shown in this photograph and described in
21 those condition reports was alarming, and one need not
22 be an expert in inspection or in nozzle cracking to
23 recognize there was a serious problem with boron on
24 the reactor head.

25 Mr. Geisen permitted restart of the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 reactor with boron still on the head. He did so based
2 on the fact that a work order had been issued to clean
3 it. However, that cleaning was never successful, and
4 Mr. Geisen was well aware of the circumstances of that
5 cleaning because the responsible engineers came to him
6 during the outage where the normal cleaning process
7 was not working.

8 Mr. Geisen approved the use of pressurized
9 water in an attempt to blast off the boron that they
10 could not remove even when they tried hacking at it
11 with crowbars.

12 Mr. Geisen came to know all of this
13 information before the issuance of the NRC bulletin,
14 but that's not the only information he got about the
15 condition of the head. We will show you E-mails and
16 reports he received telling him that many of the
17 nozzles could not be seen in the 2000 inspection.

18 Jack Martin will testify that Mr. Geisen
19 told him he saw the inspection videos during the month
20 of August 2000. It was after Mr. Geisen received all
21 of this information that he approved the first
22 response to the bulletin identified as Serial Letter
23 2731. That response stated that the 2000 inspection
24 showed some accumulation of boric acid deposits with
25 no visible evidence of nozzle leakage. It also stated

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 a review of the '98 and 2000 inspection videotapes
2 confirmed that the boron was not similar to those
3 indications we saw, those popcorn deposits.

4 When you look at the 2000 video, you will
5 see this is like saying I can confirm there's no dirt
6 in the ground because when I look all I see is grass.

7 Just as important is what the serial
8 letter did not say. It did not say the boric acid
9 deposits on the head were so extensive that large
10 portions were inaccessible for inspection. It did not
11 say that many nozzles were completely engulfed in
12 boron. It did not say that the boron was red in
13 color, indicating that corrosion was occurring. It
14 did not say that it would have been impossible to tell
15 whether these popcorn deposits were present underneath
16 those piles of boron.

17 These are all things that Mr. Geisen knew.
18 Yet he signed it after reviewing it and approving it
19 for technical accuracy.

20 The NRC continued to have concerns about
21 nozzle cracking even after reviewing that serial
22 letter. At the end of September, Brian Sharon
23 (phonetic) called Mr. Geisen's boss and suggested that
24 Davis-Besse shut down by December of 2001 in order to
25 conduct additional inspections. This was well before

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 the next scheduled outage which was to occur in April
2 of 2002.

3 An unscheduled outage in December would be
4 costly and difficult, requiring the company to
5 purchase replacement power and employees to work over
6 the holidays. Management was visibly upset by the
7 phone call and determined to persuade the Staff to
8 allow operation until the next scheduled outage.

9 The first step was a conference call on
10 October 3rd, during which Mr. Geisen told the Staff
11 that a 100 percent inspection of the head had been
12 conducted during the 2000 outage and boric acid
13 prevented them from definitively making conclusions
14 about a handful of nozzles on the very top.

15 The Staff requested the inspection results
16 be provided in the form of a table showing results on
17 a nozzle-by-nozzle basis. Mr. Geisen was assigned the
18 responsibility for developing this table and for
19 developing a crack growth analysis to justify safe
20 operation until the next outage.

21 The following week FENOC managers,
22 including Mr. Geisen, flew to Rockville to make their
23 case directly to the Commissioners' technical
24 assistants. this was not an ordinary meeting, and
25 these were not off-the-cuff remarks. These managers

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 were taking their case over the Staff and directly to
2 the ultimate decision makers, the Commissioners, to
3 persuade them to allow operation until the next
4 scheduled outage.

5 During that meeting Mr. Geisen presented
6 a slide stating that all nozzle penetrations had been
7 verified to be free from popcorn type deposits. He
8 said this even after seeing those condition reports,
9 the red photo, receiving those E-mails and memos
10 telling him that much of the head could not be
11 inspected, and seeing the inspection videos.

12 At the time Mr. Geisen made that
13 presentation, he was overseeing the development of the
14 nozzle table. He looked at the inspection videos
15 again with the engineer who was primarily putting it
16 together and assured his management it was being
17 developed properly. According to Mr. Geisen, the
18 nozzle table was completed some time after that TA
19 briefing, and when he saw it, he realized it could not
20 be reconciled with what he had just told the NRC.

21 So he went to his management and what they
22 did was telling. They did not call the TAs or anybody
23 at the NRC to say, "What we told you was wrong," and
24 make a correction. Their agenda persuading the NRC
25 that no safety problem existed prompted them to

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealgross.com

1 develop a modified but still misleading version of
2 their argument to the NRC. This time they relied on
3 the inspection conducted in 1996.

4 While the table disclosed more information
5 about limitations of the '98 and 2000 inspections,
6 they still failed to disclose the true extent of boron
7 on the head. This new version of their argument was
8 described in Serial Letter 2735. This letter said,
9 "We can show you a complete picture of the head if you
10 look at '96, '98, and 2000 inspections."

11 However, the nozzle table supporting the
12 response did not have any information from the '96
13 inspection. What you see on your screen here is the
14 nozzle table, and as you can see, the column for 1996
15 is completely blank.

16 Mr. Geisen realized this had to be
17 explained, and he wrote a note on the table saying
18 that specific nozzles could not be identified because
19 the tape didn't have narration identifying where the
20 camera was on the head. He also wrote the entire RPV
21 head had been inspected during 1996.

22 The evidence will demonstrate that Mr.
23 Geisen knew the entire head could not be viewed in any
24 of those inspections. Using the inspection technique
25 employed at the time on which a camera on a stick was

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 inserted through the weep holes at the bottom of the
2 head, it was impossible to reach the very top of the
3 reactor head. Mr. Geisen knew of this problem because
4 the fix, which was the cutting of larger access holes,
5 required a design change that he was responsible for
6 approving.

7 The last serial letter, 2744, was
8 submitted at the end of October 2001. Once again, Mr.
9 Geisen wrote notes explaining the absence of any
10 nozzle information for the 1996 inspection. This time
11 you'll see on your screen the note. Again, we have
12 the table with no information for 1996 on a nozzle-by-
13 nozzle basis, and this is the note he wrote there.

14 This time he said that 100 percent of the
15 nozzles were inspected by visual examination. He also
16 wrote there was no evidence of leakage.

17 Mr. Geisen knew this representation was
18 necessary to persuade the NRC to allow operation until
19 the spring of 2002, and he knew this because he knew
20 the outcome of the crack growth analysis. This was an
21 evaluation that had been developed to persuade the
22 Staff that even if cracks existed, they would not grow
23 to the point that would cause a safety concern before
24 the next outage.

25 That analysis required a good inspection

1 as a baseline, and that baseline could be no earlier
2 than 1996.

3 Just as before, Mr. Geisen knew this
4 information was not correct, but his involvement in
5 Serial Letter 2744 did not end there. The letter
6 contained photographs of nozzle penetrations from the
7 inspection tapes. Mr. Geisen was responsible for the
8 photos and wrote captions to describe them. His
9 captions stated the photographs were representative of
10 the condition of the head.

11 It is undisputed here that they were not.
12 Once again, the information provided was misleading,
13 showing good nozzles and omitting those that might
14 have raised safety concerns within the NRC.

15 In November, Mr. Geisen again traveled to
16 Rockville, this time with Mr. Moffitt to attend a
17 meeting of the ACRS. Mr. Moffitt explained that the
18 crack growth analysis justified operation until the
19 next refueling outage using the 1996 inspection as a
20 baseline. A question about the extent of the '98 and
21 2000 inspections was asked, and Mr. Geisen volunteered
22 to provide the answer. He told the ACRS that the 1996
23 inspection showed a more downward look at the nozzles
24 because the camera was following a vacuum, and the
25 later inspections were looking for other things.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 This was a theory that diverted attention
2 from the real issue, which was the boron on the head.
3 He did not tell the ACRS what he knew, that the '98
4 and 2000 inspections were more limited because of the
5 increasing amount of boron which had been deposited on
6 the head. Of course, that information could have
7 raised difficult questions about their justification
8 for continued operation.

9 Ultimately, Mr. Geisen and the other
10 managers were successful in persuading the NRC it was
11 safe to allow operation until March of 2002. During
12 that outage, it was discovered that nozzle leakage had
13 not only occurred, but had caused an even more serious
14 problem than the NRC had anticipated. It had corroded
15 a hole in the reactor head.

16 The discovery at Davis-Besse demonstrates
17 the importance of vigilant NRC oversight and of the
18 necessary predicate to oversight, complete and
19 accurate information. The enforcement action against
20 Mr. Geisen sends a message to employees throughout the
21 industry that individuals will be held accountable and
22 responsible for their actions, and the NRC will not
23 allow manipulation of the facts to guide its
24 regulatory actions.

25 Thank you.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 JUDGE FARRAR: Thank you, Ms. Clark.

2 And, a gain, for the benefit of those
3 watching, that was the Staff's opening statement of
4 what they expect the evidence will show, and so that
5 was not the appropriate time for the Board to ask any
6 questions. Questions will be asked during the rest of
7 the week when the witnesses testify.

8 Mr. Wise.

9 MR. WISE: Your Honor, with the leave of
10 the Court, may I address the Court from the well?

11 JUDGE FARRAR: Certainly?

12 MR. WISE: Thank you.

13 Good morning, Your Honor. Let me start
14 by, first of all, thanking the Board for taking the
15 time to read the case summaries that we submitted.
16 Because we've given the Board an overview of what we
17 believe the evidence will show, I'm going to try not
18 to repeat much of those things for you this morning
19 but instead try to focus Your Honors on some of the
20 issues that we think are key to understanding evidence
21 and the testimony you're about to hear.

22 And having heard the Staff's opening, I
23 think there is an additional theme to the two that I
24 wanted to talk to you about, and that is why we are
25 here, because we are here to adjudicate the actions of

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 David Geisen, not of First Energy, not of Davis-Besse,
2 and to a large degree, many of the issues that the
3 Staff addressed are uncontested, uncontested by us and
4 uncontested by Mr. Geisen. You're not going to get
5 any argument from him that it is important for
6 licensees to provide truthful information. You will
7 get no argument from him that it is okay to be
8 misleading or deceptive or dishonest.

9 This man has gone through a career
10 changing event through what happened at Davis-Besse in
11 the fall of 2001. He has been interviewed a number of
12 times, including by the NRC OI, and you will not find
13 a more contrite, more self-critical engineer. You
14 will hear through this hearing how he has talked about
15 mistakes that were made, about looking back in
16 hindsight and seeing tunnel vision about errors in
17 judgment. You will get no argument about that from
18 him.

19 What the staff has alleged though against
20 him is that he lied, and so the question is not should
21 he have figured out what certain things meant; should
22 he have figured out that there were signs that
23 something was amiss. What you're going to hear over
24 the next three or four days is that with the benefit
25 of hindsight after the discovery of the cavity, there

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 are a number of things that are crystal clear to
2 people, including Mr. Geisen, but not limited to Mr.
3 Geisen, that were not so clear back then.

4 The photo that you saw taken in 2000 shown
5 to Mr. Geisen when he was in Outage Central at the
6 time you will learn was also provided at the same time
7 to the NRC resident inspector. This is not to say
8 that the resident inspector had some desire to mislead
9 the NRC. What it shows is that the significance of
10 some of the things that you will hear today is much
11 more clear now than it was then, and their allegation
12 is that he knew the significance of it then and
13 intentionally lied, and the evidence won't show it.

14 The two things that I think are very
15 important for the Board to keep in mind as you start
16 hearing the evidence are context and hindsight.
17 Context in this case is critical. From the staff's
18 opening I submit you would take it that Dave Geisen
19 ran Davis-Besse. He determined the course of
20 strategy. He determined the agenda, as Ms. Clark
21 called it. He determined when things were going to be
22 done, such as the plant being brought on line.

23 He was the manager of design basis
24 engineering in 2000. You're going to hear from him
25 what that entailed, what his duties were, what kinds

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 of things he did, where he stood on the organizational
2 chart. You're going to know that in 2000 when the
3 plant came on line, it was not because Dave Geisen
4 said, "Time for the plant to come on line."

5 What happened in 2000 in Outage Central is
6 that there was a cleaning going on of the head. There
7 was an inspection, although what the Board is going to
8 learn is that at the time inspection didn't have the
9 same meaning as it does now.

10 A systems engineer named Andrew Siemaszko
11 was in charge of cleaning the head and observing the
12 condition of it when he started, and what the Board is
13 going to learn is that Mr. Geisen was in Outage
14 Central at a point when Mr. Siemaszko came in and said
15 to the assembled group that they were having some
16 difficulty cleaning the head, and Mr. Geisen approved
17 the use of water to clean it after some discussion
18 about whether that might itself create a safety
19 concern.

20 Important to this issue though is what you
21 will learn is that other than that conversation, Mr.
22 Geisen had no involvement in the inspection of the
23 head or the cleaning of the head, nor had he in 1998
24 nor had he in 1996. One of the witnesses that the
25 staff is going to call, Prisoon Goyal (phonetic), was

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 intimately involved in the inspection and cleaning in
2 1996 and, in fact, wrote a report about what he found,
3 a report that made its way through many at Davis-Besse
4 that Mr. Geisen never saw until after the corrosion
5 cavity was found, and the reason he never saw it is
6 because it dealt with duties in parts of the plant
7 that he was not involved in.

8 In 2000, what the context will show is
9 that coming out of that outage what Mr. Geisen
10 believed to be true was that there had been boron
11 found on the head, there had been an effort to clean
12 it, and the cleaning had been successful. Coming out
13 of the outage, he returned to his duties, which were
14 not centered on the cleaning and the inspection of the
15 head. He did serve on the steering committee. You
16 will hear about the level of discussion about the
17 emerging issue on that committee and about Mr.
18 Geisen's involvement.

19 There will be much discussion about the
20 issuance of the bulletin. There will be no
21 conversation from us about whether it was important to
22 the NRC or material, but what you'll hear is that
23 Davis-Besse gathered a team to submit its response,
24 and Mr. Geisen was no part of the team that was
25 involved in drafting the language or deciding how to

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 respond. It was, in fact, done by people who had been
2 involved in the inspections, been involved in the
3 cleanings, and you will hear that he did review, along
4 with many other managers and directors, the end
5 product during this green sheet review, and that based
6 on Mr. Geisen's review, what he saw was that the
7 relevant people who had no reason at that point to
8 distrust had had input into the product and he
9 approved it.

10 That was his entire involvement with the
11 first submission that the staff wants you to believe
12 was the first step towards pursuing this agenda.

13 The next real involvement that Mr. Geisen
14 has is this October 3rd conference call, and you're
15 going to hear how he became involved in the team, how
16 the preparations were made for that conference call,
17 and what Mr. Geisen said.

18 And he, in fact, did say on that call that
19 in 2000 Davis-Besse had done a 100 percent inspection,
20 and they had except for five or six nozzles that were
21 obscured near the top of the head. That was based on
22 information he drew from the bulletin and based on
23 information he drew from the preparation sessions. He
24 had no independent knowledge of what the inspections
25 had shown or what the cleaning efforts had been other

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 than his limited involvement in Outage Central and his
2 review of those documents.

3 The Staff tells you that Jack Martin will
4 tell you that Dave Geisen watched the videos in August
5 of 2001. Mr. Martin may say that. He interviewed Mr.
6 Geisen for 20 minutes in the course of a week, an
7 informal week long investigation. He took notes.
8 That comment you will learn is wildly out of context,
9 and the notes are inconsistent to the point of being
10 unreliable because it will be very clear that Mr.
11 Geisen did not view the videos in August of 2001 and
12 that the context of the statement where Mr. Martin
13 attributes that to him is that Mr. Geisen said he
14 reviewed them preparing for interactions with the NRC,
15 and there will be no question that he had no
16 interactions with the NRC in person before October
17 11th, even by telephone before October 3rd.

18 On the call he made the statements based
19 on the information he then believed to be true. There
20 may well be questions about whether he should have
21 been more critical of the information he got, whether
22 he should have doubted it. He, in fact, has said that
23 with the benefit of hindsight, he wishes he had been
24 more skeptical, but that's not what the allegation is.

25 The allegation is that he knew and he

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealgross.com

1 lied, and there's no evidence of that. What he did
2 between October 3rd and October 11th was tasked to
3 oversee two projects. One was the creation of the
4 crack growth rate model that you'll hear much more
5 about, and the other was overseeing the construction
6 of this nozzle-by-nozzle table that Ms. Clark referred
7 to. That table was being put together by Andrew
8 Siemaszko, who you will learn was the systems engineer
9 who had done the inspection in 2000, who had been to
10 another plant to watch the inspection, who was
11 recognized as the engineer who owned the head at
12 Davis-Besse, and was in charge of making sure that the
13 information was accurate.

14 Mr. Geisen had no reason to doubt Mr.
15 Siemaszko's reliability, his credibility at that
16 point, and you will hear that the discussions that he
17 had with the NRC, the statements he made were born out
18 of his reliance upon Mr. Siemaszko's information.

19 The table that Ms. Clark pointed to with
20 the footnote that says in '96 the entire head was
21 seen, that statement was made in the context of the
22 submission where on the page before the language was
23 that in 10 RFO or the 1996 inspection, 65 or 69
24 nozzles were viewed. Should the comment about 100
25 percent inspection have been more precise? Arguably,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 but that again is not the issue. The question is
2 whether he believed he was knowingly submitting false
3 and misleading information, and the evidence will show
4 he did not.

5 The other issue is the issue of hindsight,
6 and I would urge Your Honors as you hear the evidence
7 and hear the testimony to weigh this most human of
8 emotions, which is that when you now know of something
9 like the fact that there was a corrosion cavity
10 developing in the head, it's very difficult to go back
11 and put yourself in the shoes of where you were before
12 that knowledge was gained.

13 But the Board has to do that in order to
14 evaluate the order because this is not a case about
15 should he have figured it out. It's a case about did
16 he know. That will come, I believe, most strongly
17 into focus with Mr. Goyal and Dr. Hiser, and what I
18 think the Board has to try to do is listen to people's
19 descriptions of their reactions in real time in 2001
20 because now there's no question that there are many
21 who feel that they were lied to or misled.

22 The question before the Board is at the
23 time that this was going on was it Mr. Geisen's intent
24 to do that. Was it his knowledge base that allowed
25 him to do that? And we believe the evidence will show

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 it was not.

2 Like I said, there is no question that it
3 is important for the NRC to exercise its oversight
4 diligently and vigorously, but there's also no
5 question that the order that brings us here today is
6 against David Geisen. It is one thing to send a
7 message to the industry. It is another thing to send
8 a message based on extrapolation of evidence that
9 doesn't support the extrapolation and based on an
10 unfair application of hindsight.

11 Thank you.

12 JUDGE FARRAR: Thank you, Mr. Wise.

13 Again, the Board asked no questions
14 because that was a statement of what Mr. Geisen
15 intends to prove through the evidence.

16 Our next order of business will be the
17 introduction of exhibits as a group as opposed to what
18 would ordinarily be done where they would be
19 introduced through the sponsoring witness, but with
20 the parties' stipulation. We'll do it this way.

21 Ms. Clark.

22 MS. CLARK: Thank you, Your Honor.

23 At this time we'd like to move the
24 admission of the NRC exhibits, and I believe we are
25 just to, rather than recite them, just say that they

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 are documented on our exhibit list.

2 JUDGE FARRAR: As I understand it, you've
3 already pre-marked them. You've given the requisite
4 number of copies to the court clerk --

5 MS. CLARK: Yes, Your Honor.

6 JUDGE FARRAR: -- as opposed to having the
7 Court Reporter stop and mark them.

8 The list we have goes through 83, one
9 through 83, with some missing.

10 MS. CLARK: That's correct.

11 JUDGE FARRAR: All right. Why don't we at
12 this point have that list bound, that tabular list
13 bound into the transcript as though you had read from
14 it and then we'll proceed to talk about it?

15 (Whereupon, the documents referred to
16 were marked as Staff Exhibit Nos. 1
17 through 72, 74, 75, and 77 through 83 for
18 identification.)

19 (The NRC Staff Exhibit List follows.)
20
21
22
23
24
25

**In the Matter of David Geisen
ASLBP No. 06-845-01-EA**

**NRC STAFF Exhibit List
December 8-12, 2008 Hearing**

NRC Exhibit #	Date	Description	Geisen Criminal Trial Gov. Exhibit #
1	2005	NRC Enforcement Policy	n/a
2		Illustration of Pressurized Nuclear Reactor	132
3		Illustration of Pressurized Water Reactor Babcock & Wilcox	131
4		Illustration of Fuel Assembly	128
5		Illustration of Reactor Vessel Head Cross-Sectional View	137
6		Illustration of CRDM Nozzle Cross-Sectional View	136
7		Illustration of Reactor Vessel Head Map	133
8	8/3/2001	NRC Bulletin 2001-01	29
9	9/4/2001	Serial Letter 2731	60
10		Green Sheets for 2731	59
11	10/17/2001	Serial Letter 2735	105
12		Green Sheets for 2735	104
13	10/30/2001	Serial Letter 2744	113
14		Green Sheets for 2744	112
15		10 C.F.R. §§ 50.5 and 50.9	n/a
16	4/21/1996	PCAQ 96-551 (Boric Acid on RX Vessel Head)	5
17	4/25/1998	PCAQ 1998-0767	9
18	4/6/2000	Condition Report 2000-1037	15
19	4/6/2000	Condition Report 2000-0782	12
20	4/25/2000	Work Order 00-001846-0000	n/a
21	12/13/2000	Email from Goyal to Siemaszko, cc: Geisen et al, Subject: Oconee Feedback	22
22	1/30/2001	Trip report, Goyal to Swim, cc: Geisen et al, Subject: BWOG Materials Committee Meeting	23
23	3/26/2001	Email from Goyal to Siemaszko, cc: Geisen et al, Subject: Oconee3 CRDM Nozzle Cracking	25
24	4/6/2001	Email from Goyal to Siemaszko & McLaughlin, cc Geisen et al, Subject: FW: CRDM Safety Analyses Questions	n/a
25	4/16/2001	Email from Spencer to Geisen et al, Subject: CRDM Nozzle Cracking	n/a
26	4/19/2001	CRDM Nozzle and Weld Cracking Information Exchange Meeting 4/19/2001 Framatome ANP Slides	n/a

**In the Matter of David Geisen
ASLBP No. 06-845-01-EA**

**NRC STAFF Exhibit List
December 8-12, 2008 Hearing**

NRC Exhibit #	Date	Description	Geisen Criminal Trial Gov. Exhibit #
27		CRDM Nozzle and Weld Cracking Information Exchange Meeting 4/19/2001 ANO-1 CRDM Nozzle 56 Inspection and Repair	n/a
28	4/26/2001	Trip report, Goyal to Swim, cc: Geisen et al, Subject: NEI/MRP Alloy 600 ITG and NRC Meeting	n/a
29	4/30/2001	NRC Information Notice 2001-05: Through-Wall Circumferential Cracking of Reactor Pressure Head Control Rod Drive Mechanism Penetration Nozzles at Oconee Nuclear Station, Unit 3	n/a
30	6/11/2001	Trip report, Goyal to Swim, cc: Geisen et al, Subject: B&WOG Materials Committee Meeting	n/a
31	6/27/2001	Memorandum from Goyal to Distribution approved by Geisen, Subject: Mode 5 Reactor Vessel Head Inspection Recommendation	26
32	7/10/2001	Email from Goyal to Siemaszko, cc: Geisen et al, Subject: Plant-specific data verification	27
33	7/12/2001	Memorandum from Goyal to Swim, cc: Geisen et al, Subject: EPRI/MPR Alloy 600 Workshop	28
34	8/8/2001	Email from Kennedy to Cook, Subject: NRC Telcon, Alloy 600 Bulletin	150
35	8/9/2001	Email from Goyal to Siemaszko and Cunnings, Subject: NRC Bulletin	34
36	8/11/2001	Email from Goyal to Geisen et al, Subject: NRC Bulletin 2001-01 Circumferential Cracking of RV Head Penetration Nozzles	36
37	8/13/2001	Email from Goyal to Siemaszko et al, Subject: Mod 5 JCO	37
38	8/15/2001	Email from Kennedy to Cook, Subject: CRD Nozzle Cracking Meeting	n/a
39	8/17/2001	Email from Goyal to Fyfitch and Gray cc: Geisen et al, Subject NRC Bulletin	40
40	8/22/2001	Trip Report, Goyal to Swim, Subject: NRC Bulletin 2001-01 Meeting	n/a
41	8/27/2001	Email from Goyal to Cook, cc: distribution, Subject: Serial 2731 8-27-01 version 1b	52

**In the Matter of David Geisen
ASLBP No. 06-845-01-EA**

**NRC STAFF Exhibit List
December 8-12, 2008 Hearing**

NRC Exhibit #	Date	Description	Geisen Criminal Trial Gov. Exhibit #
42	8/30/2001	Email from Goyal to Siemaszko et al, cc: distribution, Subject: Head inspection	57
43	9/4/2001	Email from Wuokko to Geisen et al, Subject CEOG meeting on BL 2001-01	61
44	9/14/2001	Letter from Gregory Gibbs, Piedmont Management & Technical Services, Inc. to McLaughlin	65
45	9/28/2001	Miller handwritten notes	n/a
46	9/28/2001	Email from Miller to Distribution, cc: Geisen et al, Subject: CRD Nozzle Bulletin 2001-01 Recent Developments – URGENT	69
47	10/2/[2001]	Discussion Agenda [for 10/3/01 teleconference with NRC], DBNPS Bulletin 2001-01 Response	n/a
48	10/2/2001	Miller handwritten notes of 10/2/2001 prep meeting	72
49	10/3/2001	Email from Goyal to Geisen cc: distribution, Subject: Crack Growth Rate (CGR)	n/a
50	10/3/2001	Email from Cook to Lockwood and others	n/a
51	10/3/2001	Miller handwritten notes of 10/3/2001 teleconference with the NRC	78
52		NRC Summary of 10/3/2001 teleconference and other handwritten notes of other NRC participants	n/a
53	10/3/2001	Email from McLaughlin forwarding email Subject: Photo of the Crystal River VHP indication	82
54	10/3/2001	Email from Goyal to Geisen cc: distribution, Subject Ocone3 Inspection	81
55		FENOC Slides for Commissioner TA Briefing on 10/11/2001	87
56	10/11/2001	Commissioner Technical Assistant Briefing, October 11, 2001	88
57	10/19/2001	Email from Wuokko to Geisen et al, Subject: Your two emails	106
58	11/6/2001	Meeting Summary of October 24, 2001, to Discuss the Licensee's Response to Bulletin 2001-01	108
59	11/9/2001	ACRS Meeting Transcript (selected pages)	n/a

**In the Matter of David Geisen
ASLBP No. 06-845-01-EA**

**NRC STAFF Exhibit List
December 8-12, 2008 Hearing**

NRC Exhibit #	Date	Description	Geisen Criminal Trial Gov. Exhibit #
60	11/27/2001	Memorandum from Sands (NRC) to Mendiola (NRC), Subject: Forthcoming Meeting with FirstEnergy Nuclear Operating Company	n/a
61	11/28/2001	Slides of FENOC and NRC Meeting	118
62	1/15/2002	Memorandum from VanDenabeele to Nuclear Records Management, Subject: Approved CNRB Meeting Minutes	119
63	3/27/2002	Notes of Geisen interview by Jack Martin	155
64	6/18/2002	Notes of Geisen interview by Randy Rossomme	n/a
65		Photo of Davis-Besse Vessel Head Corrosion	134
66		Photo of Davis-Besse Vessel Head from 12RFO (2000)	143
67		Photo of Davis-Besse Vessel Head from 10RFO (1996)	140
68		Photo of Oconee CRDM Nozzle #56	145
69		Holmberg Power Point Presentation	129
70		Davis-Besse Organization Circa 2001	n/a
71	10/18-19/2007	David Geisen Testimony Transcript at Geisen Criminal Trial	n/a
72	9/1/1998	Davis-Besse Project Review Group Meeting Minutes	149
73		INTENTIONALLY BLANK EXHIBIT	n/a
74	10/11/2007	Steve Moffitt Testimony Transcript at Geisen Criminal Trial	n/a
75	10/9/2007	Greg Gibbs Testimony Transcript at Geisen Criminal Trial	n/a
76		INTENTIONALLY BLANK EXHIBIT	n/a
77		Stipulated Facts	n/a
78	8/22/2006	David Lockwood Deposition Transcript – page 63-64 (ASLB No. 06-846-02 & 06-847-03) (selected pages)	n/a
79	10/29/2002	David Geisen NRC Office of Investigation Interview	n/a
80		Replicas of photos in Serial Letter 2744	n/a
81		DVD of 1996, 1998 and 2000 inspections	DOJ DVD
82		Full scale cross-sectional model of control rod drive mechanism nozzle	126
83		1/8 scale three-dimensional cross-sectional model of reactor vessel head	125

1 JUDGE FARRAR: All right. First, tell me
2 about the ones that were intentionally blank, 73 and
3 78. Are those still not included?

4 MS. CLARK: Yes, Your Honor.

5 JUDGE FARRAR: So there is no 73 and no
6 78? I'm sorry. Seventy-three and 76.

7 MS. CLARK: Yes, that's correct.

8 JUDGE FARRAR: Okay, and then the exhibits
9 that have been marked for identification one through
10 72, let's deal with those. You're moving the
11 admission of those?

12 MS. CLARK: Yes, Your Honor.

13 JUDGE FARRAR: Mr. Wise?

14 MR. WISE: We have no objection.

15 JUDGE FARRAR: All right. Then there
16 being no objection, Staff Exhibits 1 through 72 will
17 be admitted into the record.

18 (Whereupon, the documents previously
19 marked as Staff Exhibit Nos. 1 through 72
20 for identification were received in
21 evidence.)

22 JUDGE FARRAR: Seventy-four and 75?

23 MS. CLARK: Yes, Your Honor. We'd ask
24 those to be admitted as well.

25 JUDGE FARRAR: Okay. Are those, in light

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 of our discussion the other day, are those the entire
2 testimony of Mr. Moffitt and Mr. Gibbs at the criminal
3 trial or just excerpts?

4 MS. CLARK: They are the entire testimony.

5 JUDGE FARRAR: All right. Mr. Wise?

6 MR. WISE: No objection.

7 JUDGE FARRAR: All right. Then Staff
8 Exhibits 74 and 75 will be admitted.

9 (Whereupon, the documents previously
10 marked as Staff Exhibit Nos. 74 and 75
11 for identification were received in
12 evidence.)

13 JUDGE FARRAR: Seventy-seven through 83,
14 moving those?

15 MS. CLARK: Yes, I'd like that they be
16 admitted as well.

17 JUDGE FARRAR: All right. Mr. Wise?

18 MR. WISE: We have no objection.

19 JUDGE FARRAR: All right. Then Staff
20 Exhibit 77 through 83 will be admitted.

21 (Whereupon, the documents previously
22 marked as Staff Exhibit Nos. 77 through
23 83 for identification were received in
24 evidence.)

25 JUDGE FARRAR: Thank you, Ms. Clark, for

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 Staff's assistance in doing this in two or three
2 minutes instead of the 45 minutes that it sometimes
3 takes to do it that way.

4 Mr. Wise, I understand you're going to
5 reserve admission of your exhibits until later.

6 MR. WISE: We would like to do that.

7 JUDGE FARRAR: All right, fine.

8 MS. CLARK: Your Honor, I have one more
9 matter.

10 JUDGE FARRAR: Oh, yes.

11 MS. CLARK: In order to insure that all of
12 our documents are appropriately identified, we have
13 entered into stipulations with Mr. Geisen's counsel.
14 I can submit these now. These are just to identify
15 the source of some of these documents. They will not
16 be always entered in by sponsoring testimony.

17 JUDGE FARRAR: All right. Is that another
18 exhibit or you're just giving us that? Well, that
19 should be part of the record.

20 MS. CLARK: I thought it would be helpful
21 to have it be part of the record at the time we admit
22 the exhibits.

23 JUDGE FARRAR: Why don't we also bind that
24 into the record, into the transcript as though you had
25 read it? That way all of this about the exhibits will

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

be in one place for subsequent readers.

(The Parties' Stipulations Re: Staff Exhibits follows:)

In the Matter of David Geisen
ASLBP No. 06-845-01-EA

Parties' Stipulations re: Staff Exhibits

- Staff Exhibit 45 (Miller's meetings 9/28/01-10/1/2001 notes)
 - Stipulate to the following:
 - These are Dale Miller's contemporaneous notes of meetings on 9/28 and 10/1/2001. Dale Miller was the Compliance Supervisor.
 - Initials DHL refer to Dale Lockwood, Regulatory Affairs Manager
 - Initials DCG refer to David Geisen
 - Initials GGC refer to Guy Campbell, site Vice President
 - David Geisen has no present recollection of the meetings that conflicts with Mr. Miller's notations.
 - The pronoun "we" refers to FENOC in general
- Staff Exhibit 48 (Miller's 10/2/01 notes)
 - Stipulate to the following:
 - These are Dale Miller's contemporaneous notes of a 10/2/2001 preparation meeting for the 10/3/2001 NRC teleconference
 - Initials DCG refer to David Geisen
 - David Geisen has no present recollection of the meetings that conflicts with Mr. Miller's notations.
- Staff Exhibit 51 (Miller's 10/3/01 notes)
 - Stipulate to the following:
 - These are Dale Miller's contemporaneous notes of the 10/3/2001 NRC teleconference with FENOC representatives.
 - Staff Exhibit 48 reflects the preparation meeting for this teleconference
 - Initials DCG refer to David Geisen
 - David Geisen has no present recollection of the meetings that conflicts with Mr. Miller's notations.
 - Initials AI H. refer to Allen Hiser
- Staff Exhibit 53 (McLaughlin 10/3/01 email)
 - Stipulate that the color photo is the photo that was attached to the email
- Staff Exhibit 64 (Randy Rossomme's Interview notes)
 - Stipulate to the following:
 - These are interview notes of Randy Rossomme made during his interview with David Geisen on June 18, 2002.
 - At that time, Mr. Rossomme's titled was Supervisor of Quality Assessment.
- Staff Exhibit 80 (Replica photos)
 - Stipulate that the quality of the photos that were actually submitted to the NRC on October 30, 2001, in the original Serial Letter 2744 (which is reproduced as Staff Exhibit 13) is substantially the same as the replica photos in Staff Exhibit 80. Accordingly, for purposes of the viewing of the photos in Exhibit 13 only, the photos in Exhibit 80 will be used.

1 JUDGE FARRAR: Ms. Clark, speaking of
2 stipulations, how are we handling the stipulation you
3 reached with counsel on all of that factual
4 background?

5 MS. CLARK: That's one of our exhibits.

6 JUDGE FARRAR: It is? Okay.

7 MS. CLARK: Exhibit 77.

8 JUDGE FARRAR: You're right.. Okay. thank
9 you.

10 All right. Then next, Mr. Wise, any other
11 business?

12 MR. WISE: No, Your Honor. Thank you.

13 JUDGE FARRAR: Okay. Then we'll be ready
14 for the first witness: I assume that as rapidly as
15 counsel spoke during the opening statements, it's a
16 good time for the real time Court Reporter closed
17 caption to take a little break. So why don't we --
18 no? You're all right? Okay. That's not what your
19 agents told me but all right. Then let's, as long as
20 she's ready to go, Ms. Clark, if you'd call your first
21 witness.

22 MR. GHASEMIAN: Good morning, Your Honor.
23 My name is Shahram Ghasemian, counsel for NRC Staff,
24 and the Staff calls Mel Holmberg as its first witness.

25 JUDGE FARRAR: All right. Mr. Holmberg,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 before you sit down, raise your right hand.

2 Whereupon,

3 MELVIN S. HOLMBERG

4 was called as a witness by counsel for the NRC Staff
5 and, having been first duly sworn, was examined and
6 testified as follows:

7 JUDGE FARRAR: Thank you.

8 Do you want him seated there or is he
9 going to be out -- fine. Thank you.

10 DIRECT EXAMINATION

11 BY MR. GHASEMIAN:

12 Q Good morning, Mr. Holmberg. Is that model
13 blocking your view by any chance in front of you? You
14 can see the Board members?

15 Could you state and spell your name for
16 the record, please?

17 A My name is Melvin S. Holmberg, spelled M-
18 e-l-v-i-n, middle initial S., "Sam," last name
19 Holmberg, H-o-l-m-b-e-r-g.

20 Q In what city and state do you live?

21 A I live in Naperville, Illinois.

22 Q And who do you work for?

23 A I work for the Nuclear Regulatory
24 Commission, the Region III office.

25 Q And how long have you been with the NRC?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 A Since 1994.

2 Q And what is your current position?

3 A I'm a reactor inspector.

4 Q And how long have you been in that
5 position?

6 A I've been a reactor inspector since
7 qualifying in 1995.

8 Q Now I'm going to ask you a few questions
9 about your work history and your educational
10 background. What is your educational background?

11 A I have a Bachelor's degree in
12 metallurgical engineering, University of Washington.

13 JUDGE FARRAR: Hold on. Off the record
14 for a second.

15 (Whereupon, the foregoing matter went off
16 the record at 10:28 a.m. and went back on
17 the record at 10:28 a.m.)

18 JUDGE FARRAR: Okay. Back on the record.

19 BY MR. GHASEMIAN:

20 Q Okay. You just told us about your degree
21 and where you went to school. After graduating from
22 the University of Washington, what did you do?

23 A I took a position with Mare Island Naval
24 Shipyard, and at Mare Island I entered the Shift Test
25 Engineer Program. I qualified as a shift test

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 engineer in 1985, and through my career at the
2 shipyard I held progressively more responsible
3 positions: shift test engineer, chief test engineer,
4 and culminated with the added radiological ventilation
5 and mechanical engineering branch before coming to
6 work for the NRC.

7 Q What do they do at the shipyard?

8 A They overhaul nuclear submarines.

9 Q And what kind of testing activities were
10 you involved in?

11 A In qualifying as a shift test engineer I
12 was Board certified in S5W type submarine systems, and
13 that involves about 3,000 hours of training and hands-
14 on experience with the systems that support the
15 reactor on a nuclear power plant in the submarine.

16 Q And did you have to do any ongoing
17 training or certification to keep that certification?

18 A Yes. To maintain my qualification I took
19 an oral board every two years. This is an oral Board
20 where you had agencies other than the shipyard certify
21 my qualification status. Specifically the naval
22 reactors and the Department of Energy representatives
23 sat on the board.

24 Q And when you joined NRC, you said you
25 joined NRC as an inspector?

1 A I joined as a reactor engineer and then
2 spent more than a year qualifying as a reactor
3 inspector. That involved about 2,000 hours worth of
4 training and hands on experience to become certified
5 as a reactor inspector.

6 Q And what are your duties generally as a
7 reactor inspector?

8 A As a reactor inspector my duties are to
9 conduct inspections for the NRC. Our inspection
10 program is comprised primarily of what we call
11 baseline inspections, and I'm in a specialized area in
12 the Engineering Branch. So my inspections are focused
13 on maintenance activities that occur at a power plant
14 and engineering modifications that occur at a power
15 plant.

16 Q And in the course of your work, have you
17 been involved in inspection of pressurized reactor
18 vessel heads?

19 A Yes. Part of the specialized area I look
20 at is called in-service inspection, and the reactor
21 vessel head is an area that they put out special
22 temporary instructions that focused our inspection
23 activities, reviewing the licensees performing
24 inspections to the reactor vessel head, and I've done
25 in excess of a dozen inspections observing licensees

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 performing examinations of reactor vessel heads.

2 Q And what kinds of examinations or
3 inspections are done to the reactor vessel head?

4 A Currently there's an NRC order in place.
5 That order requires both visual and non-visual
6 examinations of the reactor vessel head, and the
7 visual inspections, again, are conducted from the
8 outside of the reactor vessel head, and the non-visual
9 inspections are typically conducted from underneath
10 the reactor vessel head.

11 And I can go into more detail later on
12 then.

13 Q Okay, and did you have to take any courses
14 or have any training to be able to do that?

15 A yes. I've had training in a number of
16 types of non-destructive examination techniques, eddy
17 current, magnetic particle testing, dye penetrant
18 testing, ultrasonic testing, radiography, as well as
19 hydrostatic testing, and of course, visual
20 examinations.

21 MR. GHASEMIAN: Your Honor, the Staff
22 moves Mr. Holmberg as an expert witness testifying
23 about pressurized water reactor components, the theory
24 and practice of inspection of reactor vessel heads,
25 and the information provided relating to the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 conditions of the Davis-Besse vessel head during the
2 past inspections.

3 MR. WISE: No objection.

4 JUDGE FARRAR: All right. There being no
5 objection and in light of the qualifications recited,
6 we'll accept Mr. Holmberg as an expert witness on
7 those subjects, which we'll allow him to express not
8 only facts but opinion evidence.

9 MR. GHASEMIAN: Thank you, Your Honor.

10 BY MR. GHASEMIAN:

11 Q Now we're going to go through a series of
12 exhibits that are diagrams of various components of a
13 pressurized power reactor. We're going to go to
14 Exhibit No. 2.

15 Do you see the -- is your monitor in front
16 of you working?

17 A Yes, it is.

18 Q Okay. What are we looking at?

19 A We're looking at a general layout of a
20 pressurized nuclear water reactor.

21 Q And how many cycles are there?

22 A Basically it's a -- you've got two
23 different loops here or two different -- let's see.
24 Let's make sure I've got a laser pointer here. It
25 doesn't show up if I don't point it up here.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 Q I think you may have a touch screen.

2 A Ah, I'll try that. Okay.

3 Okay. What you're looking at, if I state
4 on the left side of this picture, you're looking at
5 the containment structure where I touched it. There's
6 a little red dot. Right below that the containment is
7 a -- Davis-Besse is comprised at a shield building,
8 and so it's a reinforced concrete structure, and then
9 inside is a free standing metallic structure that
10 represents the containment, and inside the containment
11 are the components listed here. There's a reactor
12 vessel, and the reactor vessel is part of the reactor
13 coolant system, and this would be the primary loop, if
14 you will, and this is where the reactor coolant pumps
15 circulate water through the core, which is heated, and
16 the water is pressurized with a pressurizer which has
17 heating elements and maintains a steam bubble so that
18 the pressure is maintained about 2,000 pounds. So
19 that hot water --

20 Q Mr. Holmberg, if I may --

21 A Yes, sir.

22 Q -- interrupt you for a second, I think I'm
23 getting a signal.

24 A Okay. I think I'm doing that. I'm seeing
25 some red marks that show up on mine.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 Okay.. So the coolant --

2 Q Well, let's go one -- since it's not
3 working --

4 A No.

5 Q Oh, now it's working.

6 A All right. I'm seeing red here. Anyway,
7 the reactor coolant circulates through the primary
8 loop, and in the steam generator the heat is converted
9 or absorbed by the feedwater, boils off into steam.
10 The steam then circulates outside the containment
11 through a turbine, spins the turbine, and then the
12 steam is condensed and returned to the steam
13 generator.

14 The spinning turbine drives the generator.
15 The generator spinning produces electricity, which
16 then goes out via the power lines to the grid to power
17 homes.

18 Q Okay. Now, focusing on the reactor vessel
19 head, which I think is the figure inside the
20 containment structure to the left of the diagram,
21 let's go to the next exhibit, Exhibit 3, NRC Staff
22 Exhibit No. 3. What are we looking at here?

23 A You're looking at a cut-away view of a B&W
24 designed reactor vessel, and I'll explain starting
25 from the outside. The vessel itself is represented by

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 this -- oops, the arrows aren't showing up exactly
2 where I'm trying to point, but they're -- the
3 outermost sectional view is the reactor vessel. It's
4 a two-piece vessel bolted together at this elevation,
5 and it's held to the vessel by studs, and the vessel
6 itself is about 40 feet tall, and the opening to the
7 vessel here and here are cross-sections for the inlet
8 and outlet nozzles.

9 This is where the reactor coolant comes
10 in, and then the coolant is directed down. Oops, it's
11 actually down on this annulus and then back up through
12 the core where it's heated. The fuel assemblies shown
13 here are stacked in this area. This is the active
14 region of the core, and that's roughly 12 feet in
15 height, and so the heat from the nuclear fission then
16 heats the water which is circulated and sent back out
17 to the steam generators which we discussed earlier.

18 At the top of your screen, you'll see the
19 reactor vessel head, and this is the area, this domed
20 region right here, and at the top of the head a
21 reactor pressure vessel nozzles. Those nozzles
22 penetrate the reactor vessel head and serve as a
23 support area for the reactor vessel control rod drive
24 mechanisms. Those are attached to control rods that
25 are down in the core and are withdrawn out of the core

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealgross.com

1 anyway. These serve to align and support the control
2 rods as well as part of the reactor pressure vessel or
3 reactor pressure coolant pressure boundary.

4 Q Okay. How many control rods are there?

5 A There's a total of 69 vessel head
6 penetrations, but only a portion of those are used for
7 control rod functions, and for Davis-Besse, that total
8 number of control rods is like 61 and then 53 of those
9 are used for removable control rods.

10 Q Okay. Looking at the top of the diagram,
11 what are those figures that are kind of sticking out
12 of the vessel?

13 A I'm sorry. The figure you're talking
14 about, the --

15 Q These, yes.

16 A Yes, the vessel head penetration nozzles,
17 those vessel head penetration nozzles are tubes.
18 They're various lengths. They all terminate at the
19 same elevation. They are about four inches in
20 diameter where -- they're almost exactly four inches
21 in diameter where they penetrate the vessel head, and
22 again, they serve the functions I discussed earlier.

23 Q Okay. Moving on to Staff Exhibit No. 4,
24 what are we looking at here?

25 JUDGE FARRAR: Before you do that, Mr.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 Holmberg, what's the diameter of the head?

2 THE WITNESS: It's a little over 13 feet,
3 inside diameter.

4 BY MR. GHASEMIAN:

5 Q So what are we looking at here?

6 A You're looking at a fuel assembly. If you
7 don't mind I'm going to try to use my laser pointer.
8 I'm not happy with wherever I'm pointing. It seems to
9 be off about a quarter inch.

10 So we're looking at a fuel assembly, and
11 what that --

12 Q Well, so that it's clear on the record,
13 let's go, I guess, component by component. Let's
14 start with the top of the assembly. On the diagram it
15 says control rod assembly..

16 A Right, and it's got a number of
17 subcomponents. As you see there's a drive coupling.
18 This is where the attachment would go so that the
19 control rod assembly can be raised and lowered, and
20 the area in here is a support, support rings. Support
21 spider it has been referred to, and then there's
22 individual control rods. There's 16 for the Davis-
23 Besse design that serve to absorb neutrons, and this
24 array here of small diameter tubes is what contain the
25 fuel. typically it's like a 15 by 15 array for Besse,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 and they're roughly quarter inch diameter tubes that
2 extend 12 feet for length, and those tubes contain
3 uranium dioxide pellets. These pellets are an oxide,
4 and again, they're enriched slightly with U-235,
5 between three and five weight per se, and this is just
6 one of 177 or so fuel assemblies that go inside the
7 core.

8 Q Okay. Let's move on to the next exhibit,
9 Staff Exhibit No. 5, and it is a reactor vessel head
10 cross-sectional view. Let's take, I guess, one area
11 at a time. Could you show us the vessel head itself?

12 A Yes, the vessel head is this area.

13 Q And how thick is the vessel head?

14 A At that point the vessel head is a little
15 under seven inches thick.

16 Q And what material is it made of?

17 A It's a carbon steel material, and it has
18 got a stainless steel cladding at the inside surface.

19 Q And how thick is the stainless steel
20 cladding?

21 A It's about three-eighths of an inch thick.

22 Q And what's the purpose of the stainless
23 steel cladding?

24 A It serves as a corrosion barrier and
25 prevents corrosion of the carbon steel head.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 Q What is corrosive in the liquid?

2 A The reactor coolant contains boric acid,
3 which if it's allowed to concentrate is corrosive to
4 carbon steel.

5 Q Okay. Now, could you show us where the
6 insulation is?

7 A Okay. Above the reactor head you've got
8 a horizontal layer of insulation, and it's about two
9 inches thick. It's metal reflective insulation.

10 Q Okay, and what are the CRDM flanges? What
11 are they?

12 A Okay. The flanges are actually above this
13 horizontal layer of insulation, and they're shown on
14 the figure right here.

15 Q And what's the function of the insulation?

16 A The insulation serves to minimize the heat
17 conducted upward or lost from the reactor coolant
18 system and it keeps the area up above here, which has
19 the control rod drive mechanisms cool.

20 Q Okay, and I see that there's an arrow. It
21 says weep holes. What are weep holes?

22 A These are the weep holes here. They're
23 five by seven cutouts in the service structure. The
24 service structure is the cylindrical structure that
25 surrounds or surrounds the control rod drive mechanisms,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 and again, it serves as your access point to reach
2 this area here between this horizontal insulation and
3 the domed surface of the vessel head.

4 MR. GHASEMIAN: Your Honors, do I have
5 permission to approach the model and have Mr. Holmberg
6 point out the various components that we saw in the
7 diagram?

8 JUDGE FARRAR: Certainly.

9 Let's go off the record while we do this
10 housekeeping.

11 (Whereupon, the foregoing matter went off
12 the record at 10:45 a.m. and went back on
13 the record at 10:45 a.m.)

14 JUDGE FARRAR: Back on the record.

15 In order to get the electronics
16 straightened so everybody here and everywhere else can
17 hear what's going on, we'll take a break now.

18 Andy, how long do you think you'll need?

19 AUDIO RECORDER: Five minutes.

20 JUDGE FARRAR: Okay. It's quarter of.
21 Let's come back at the top of the hour, at 11 o'clock.

22 (Whereupon, the foregoing matter went off
23 the record at 10:45 a.m. and went back on
24 the record at 11:00 a.m.)

25 JUDGE FARRAR: We are back on the record.

1 Getting conflicting reports about how well the web
2 streaming is working. So for those of you out there,
3 trying to watch, we are trying to -- as I mentioned,
4 this is a pilot project, whereby the Commission wants
5 to know how we can best make our proceedings available
6 to the public.

7 And as we move from the fully paper
8 courtroom to the fully electronic one, we apologize
9 for any difficulties that may have occurred with
10 access to the feed, or with what was showing at a
11 particular time.

12 And I'm sure by the end of the day we will
13 be doing a lot better than we were at the beginning.
14 In any event, it does not affect our record of the
15 case, or how we will handle the proceeding.

16 Go ahead, Mr. Ghasemian.

17 MR. GHASEMIAN: Thank you, Your Honor.
18 Now is this working?

19 BY MR. GHASEMIAN:

20 Q Mr. Holmberg, we just finished reviewing
21 Staff Exhibit Number 5. And what we have, before you,
22 is Staff Model Exhibit number 82, I believe. And it
23 is a pre-D depiction of a vessel head, and it is to
24 scale.

25 Now, I will ask you some questions about

1 the components, and you can tell us what they are.

2 Now, could you -- maybe I will just point
3 with my finger. What are we -- what is this
4 component, that I'm pointing at?

5 A What you are pointing out is the dome
6 portion of the reactor vessel head.

7 Q And what are these items, kind of
8 intruding into the vessel head?

9 A The vertical items that you pointed out
10 are the vessel head penetrations where they penetrate
11 the dome portion of the head.

12 Q And what is in the vessel, what is the
13 liquid that is inside?

14 A It is high -- just high purity water, at
15 roughly 550 degrees, and over 2,000 pounds of
16 pressure.

17 Q And is there any boron in that water?

18 A Yes, there is boron up to about 2000 PPMs.

19 Q And what do you mean by PPMs?

20 A Parts per million.

21 Q And relatively, what is the pressure
22 inside there?

23 A It is 2,150 pounds or so, is what they
24 normally run with, at Davis-Besse.

25 Q And is there occasion that the liquid,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 inside the vessel head, ever gets -- escapes the
2 vessel head?

3 A Yes, the concern is that the J-groove
4 weld, which attaches --

5 Q Well, let's stop. Where is that J-groove
6 weld?

7 A At the inside surface of the head, there
8 is a weld, a circumferential weld, that attaches that
9 vessel head penetration --

10 Q Am I pointing to the right point?

11 A You are pointing to the correct location,
12 yes.

13 Q Okay.

14 A And, again, that weld that is credited as
15 the structural weld holding the penetration to the
16 head.

17 Q And how does the liquid inside escape
18 through the weld?

19 A The weld is made of a material called
20 inconel. That is a nickel based alloy. That material
21 is subject to primary water stress, corrosion,
22 cracking, specifically the inconel 600 in the nozzles,
23 the nozzles are fabricated of that material, it is a
24 similar composition, it is a high nickel alloy.

25 And under service conditions that are

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 experienced in a reactor, given an appropriate amount
2 of time, that material begins to crack. And when the
3 cracks manifest themselves, either in the base
4 material of the nozzle, or in that weld, you end up
5 with a potential for leakage of the reactor coolant to
6 the surface, the outer surface of the head.

7 Q And is there any other way that the liquid
8 gets on the head?

9 A What you are pointing to, at the top of
10 the nozzles, they terminate in a flange, and that
11 supports the control rod drive mechanism housings.

12 At that flange is a mechanical joint, with
13 a seal. And if that seal leaks, boric acid, or
14 reactor coolant system water can leak out, with boric
15 acid, and deposit itself above the insulation, or on
16 the vessel head.

17 Q So it leaks out and rests on top of that
18 insulation? Is this the insulation?

19 A The horizontal structure there represents
20 the insulation, yes.

21 Q And does some of it leak through the
22 insulation and onto the vessel head?

23 A That is correct.

24 Q And is there any other locations that the
25 liquid may end up?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 A Well, it could either run directly down
2 the nozzle, the vessel head penetration nozzle, or if
3 it was sufficient leak, it could spray out, hit
4 adjacent nozzles, and run down those nozzles, and
5 contact the vessel head.

6 Q Okay. Now, I'm going to rotate the model
7 a little bit, on this, so it comes up on the screen.
8 Now, this is basically half of a reactor head. And I
9 turned it so that you are looking at the other half,
10 that you couldn't see, the inside of the vessel head.

11 Now, what are these holes that are running
12 along the circumference of the vessel head?

13 A The holes, where I just touched the
14 screen, there?

15 Q Yes.

16 A Those are the weep holes, sometimes
17 referred to as mouse holes.

18 Q And what is their function?

19 A Their function is to provide access to
20 that area between the horizontal insulation and the
21 outer curved surface of the reactor vessel head.

22 Q And what are these holes, they are
23 horizontal, running around the --

24 A I put an arrow there. Those are the holes
25 for the reactor vessel head studs. Those are the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 studs that attach the reactor vessel head to the
2 vessel itself.

3 Q So this vessel head is the second piece of
4 the vessel head that you were referring to?

5 A Right, it is the piece that gets removed,
6 during refueling outages, to support refueling.

7 Q And what is, I'm pointing at, what is this
8 figure?

9 A This is a lifting lug, one of three. And
10 it is used as an attachment point so that the head can
11 be lifted in an appropriate manner.

12 Q Now, as far as -- do you do a visual --

13 JUDGE FARRAR: Mr. Ghasemian, let me
14 interrupt just for a second.

15 MR. GHASEMIAN: Sure.

16 ADMINISTRATIVE JUDGE FARRAR: What, if
17 anything, attaches the whole superstructure to the
18 vessel head?

19 THE WITNESS: The lifting lugs are welded
20 directly to the head.

21 ADMINISTRATIVE JUDGE FARRAR: Right.

22 THE WITNESS: But I think what you are
23 referring to is the outer shroud, since I lost the
24 view off my screen.

25 But this circumferential shroud, right

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 here, is -- rests on a structure which is, I don't
2 think it shows it in the model, but it is bolted, and
3 it has welded attachments where those -- support the
4 service structure on the outside of the head.

5 JUDGE FARRAR: It is welded to the head?

6 THE WITNESS: This service structure is
7 bolted to portions that are welded to the head. And,
8 again,, the model isn't exactly complete, there, in
9 that detail.

10 JUDGE FARRAR: Okay, fine, thank you.

11 MR. GHASEMIAN: Thank you. Your Honor,
12 I'm going to go on to the next exhibit. I'm going
13 back to -- I guess moving on to exhibit number 6,
14 Staff Exhibit number 6.

15 BY MR. GHASEMIAN:

16 Q What are we looking at, in this diagram?

17 A This represents a cut-away view of a
18 single vessel head penetration nozzle. It is running
19 through the reactor vessel head.

20 At the bottom of that red line I just
21 drew, is the attachment weld. And so the vessel head
22 penetration nozzles are represented, and then you have
23 a horizontal layer of insulation, here, and then
24 you've got the flange area located up here.

25 Q Okay. And what types of cracks can occur

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 at the nozzle?

2 A The nozzle, again, the nozzle material, as
3 well as the weld, are made of inconel, and that is
4 subject to, I'm trying to clear this, this is the --
5 oops.

6 There, we have it. That area, right
7 there, is subject to cracking, primary water stress,
8 corrosion, cracking.

9 Q Does the nozzle, itself, crack?

10 A Yes, the base material of the nozzle
11 cracks, and those cracks, if they traverse the, or
12 progress completely through the thickness of the
13 nozzle, result in a leakage path, so the primary
14 coolant, then, can come up behind the nozzle, and leak
15 to the top of the head.

16 Q Is there a difference how, what the
17 direction of the crack is, whether it is vertical, or
18 axial, or whether it goes around the nozzle, or
19 otherwise circumferential?

20 A Yes. The way this manifests itself is,
21 typically, it starts with axial cracking, either in
22 the base material, or cracking in the J-groove weld.

23 Once the cracking goes through wall, and
24 you get concentrated boric acid in behind the nozzle,
25 then the residual stresses from the welding are such

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 that circumferential cracks can then begin to grow,
2 from the outside surface in.

3 And the circumferential cracking is of
4 more structural significance and concern.

5 Q Why is that?

6 A Because if the circumferential cracking
7 occurs to the extent that we saw at Oconee, it can
8 challenge the integrity of that nozzle such that the
9 nozzle could, potentially -- we lost our view -- but
10 such that the nozzle could, potentially, be ejected
11 from the top of the reactor vessel head, which would
12 not only represent a loss of coolant accident but
13 because that supports the control rod it potentially
14 takes the control rod up and out of the core.

15 So you have a reactivity excursion,
16 coincident with a LOCA, which is certainly a
17 significant issue.

18 Q And what causes the nozzle to kind of
19 eject?

20 A The pressure of the reactor coolant, as I
21 mentioned before, is in excess of 2,000 pounds per
22 square inch. So once you create a large enough
23 circumferential break you can, basically, the force of
24 the pressure will push that nozzle up and out.

25 JUDGE TRIKOUROS: Mr. Holmberg, did you

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 say that all of the circumferential cracks are
2 preceded by axial cracks?

3 THE WITNESS: What they believe, or what
4 I've read, is that yes, the mechanisms, because of the
5 circumferential cracks that have been seen, to date,
6 seem to progress from the outside in, the only way you
7 get the right environment to initiate that, is you
8 need to get the boric acid in behind the nozzle.

9 So the way that happens is you get axial
10 cracking to the extent that it provides a source for
11 the boric acid to fill the annulus behind the nozzle.

12 JUDGE TRIKOUROS: Thank you.

13 MR. GHASEMIAN: Your Honor, may I approach
14 the models again?

15 BY MR. GHASEMIAN:

16 Q Going back to Staff Exhibit 82, which was
17 the cross sectional view of the vessel head, let's
18 talk about how visual inspections are done, at least
19 one type of them.

20 Could you explain how it is done?

21 A Okay. What was done, typically in the
22 past, are cameras mounted on a pole, in the case of
23 Davis-Besse, were inserted through the weep hole
24 locations, and to facilitate examination of the vessel
25 head penetration nozzles, particularly at the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 interface region, where they intersect the dome
2 portion of the head.

3 Q And how far up do the, does this typically
4 go?

5 A Well, the pole mounted camera is inserted
6 in, probably, as far as they can put it. The problems
7 is the limitations with the geometry, is that if the
8 camera is mounted rigidly to the stick, it is not
9 necessarily pointed at the area of interest by the
10 time you get near the top of the dome.

11 Q And how can they see where they are going?

12 A They have a monitor that is located
13 outside the -- or adjacent to the person that is
14 placing the camera at various positions on the head,
15 and they monitor the progress of their inspection by
16 looking at the camera, as they are conducting the
17 inspection, or the display for the cameras that are
18 conducting the inspection.

19 Q And when they are doing this inspection,
20 what are they looking for?

21 A They are looking for evidence of leakage.
22 As I mentioned, the potential leak path would result
23 in the reactor coolant system escaping at the
24 interface, where the nozzles penetrate the dome head.

25 And as the reactor coolant flashes to

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 steam, and it leaves behind deposits of boric acid,
2 which are, typically, characteristically they are
3 white, they have been described as popcorn-like
4 deposits.

5 And, again, the area of interest is at the
6 interface.

7 Q And how big are these popcorn-like
8 deposits?

9 A Well, they call them popcorn because that
10 kind of gives you a reference to a size, you know,
11 various discussions of whether that is popped or
12 unpopped.

13 But basically, either way, you are looking
14 for those kinds of accumulations at the nozzle
15 interface.

16 Q Now, we are going to move on to Staff
17 Model Exhibit number 83. And it will take me a minute
18 or so to reconfigure everything.

19 (Pause.)

20 BY MR. GHASEMIAN:

21 Q What is this model of?

22 A That is a model, again, that is depicting
23 what we saw, earlier, on the drawing, it is a cutaway
24 view of a single reactor pressure vessel head
25 penetration nozzle, as it penetrates the vessel, and

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 also the portion that goes through the horizontal
2 insulation and the termination flange.

3 Q Now, on this model, where is the vessel
4 head?

5 A The vessel head is right there.

6 Q And the welds are they here?

7 A Correct.

8 Q And the insulation, is this the
9 insulation?

10 A Yes, it is, I put little arrows by each of
11 those.

12 Q And where is the flange?

13 A The flange is this area up here.

14 Q And where does the boron leak from?

15 A It can leak from either source, it can
16 leak from a flange, it can potentially run down the
17 side of the nozzle, pausing on the head.

18 As I mentioned before the leak path, if
19 you have a crack through the base material, or through
20 the J-groove weld, would then come up through the
21 annulus behind the nozzle, and again deposit on the
22 surface of the head.

23 Q Okay, thank you.

24 (Pause.)

25 BY MR. GHASEMIAN:

1 Q Let's go to Staff Exhibit number 7. What
2 are we looking at here?

3 A You are looking at a top down view, a plan
4 view, if you will, of a reactor vessel head,
5 specifically a Davis-Besse head. The title is Reactor
6 Vessel Head Map.

7 And I use this to facilitate my reviews of
8 the reactor vessel head examinations that were
9 conducted at Davis-Besse.

10 Q We have talked about, I think, most of
11 what is depicted here, but let's go through it, as far
12 as there are some components that are numbered, and I
13 want to go through them, and you tell us what they
14 are.

15 And let's start from the outer circle. It
16 starts at the top from one, and it goes around to
17 number 60.

18 A Right.

19 Q What are those?

20 A Yes, that is, starting up here at the top,
21 and proceeding clockwise, is this outer peripheral
22 ring of holes, these are the stud holes.

23 Again, this is where the reactor vessel
24 head gets attached to the vessel with 60 studs.

25 Q And they are stationary to where the weep

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 holes are, they don't rotate, right?

2 A Right, they are a fixed location.

3 Q Now, going next, kind of circle in, the
4 weep holes, and they are all numbered, right?

5 A Correct. Now, the weep holes, starting
6 with weep hole number one, here, proceeding in a
7 counterclockwise fashion, for consecutive numbering
8 purposes on this diagram.

9 Q And are actually, are numbers engraved on
10 the weep holes?

11 A No.

12 Q How about on the stud holes?

13 A The stud holes, yes. They have been
14 annotated, at Davis-Besse, are engraved near the stud
15 holes.

16 Q Now, moving within the diagram, there is
17 a series of numbers going up to, I believe, 69. What
18 are those?

19 A Those are the vessel head penetration
20 nozzle locations. And the way the numbering system
21 works, is you start from the center. You look here,
22 at the center, you start with number one.

23 And so they proceed, basically, almost in
24 a -- I'll call it a ring-like fashion. So you've got
25 2, and then proceeding 3, 4, 5, and so forth, in

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 concentric rings.

2 So your higher numbered nozzles are on the
3 very periphery of the vessel head.

4 Q And what are the lines that are kind of
5 going through the diagram?

6 A The lines that you are talking about,
7 right here, represent the support steel, the support
8 structure for the horizontal insulation, in addition
9 to the horizontal lines, you've also got the
10 circumferential perimeter.

11 And, again, this forms a support structure
12 for that metal reflective insulation.

13 Q We are going to go back to -- not that
14 one.

15 (Pause.)

16 BY MR. GHASEMIAN:

17 Q Now, when they are doing inspections, are
18 there flange inspections and vessel head inspections?

19 JUDGE FARRAR: What exhibit is this, Mr.
20 Ghasemian?

21 MR. GHASEMIAN: I'm sorry, Your Honor, it
22 is exhibit number 5, I believe. Let me -- number 5,
23 Your Honor.

24 JUDGE FARRAR: Thank you.

25 THE WITNESS: Okay. So the question was,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 where the --

2 BY MR. GHASEMIAN:

3 Q Flange inspections versus vessel head
4 inspections, is there a difference?

5 A Yes, there's two separate areas that they
6 inspect. The flanges are located, as shown here,
7 above the horizontal layer of insulation.

8 And the vessel head penetration
9 inspections, of interest here, is below the insulation
10 down here. So the flange inspections are conducted
11 from above, actually because of the service structure,
12 they are conducted from the very top, which isn't
13 shown on this drawing, and a camera is lowered down,
14 in between the flanges, to conduct the inspections.

15 Q And when you are doing a flange inspection
16 can you see the head?

17 A No.

18 Q How about when you are doing the vessel
19 head inspection, can you see the flanges?

20 A No, you can't.

21 Q And why is that?

22 A Because the horizontal layer of
23 insulation, again, surrounds where it penetrates
24 through, precludes observing either one from those
25 locations.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 Q Okay. Now, we talked about the different
2 types of inspections of the vessel head. What are the
3 two different primary ways of doing a vessel head
4 inspection?

5 A There are two general categories of
6 inspection. There is visual or non-visual
7 inspections. Currently the NRC Order requires plants,
8 in different categories, to conduct one or both of
9 those inspections when they go into a refueling
10 outage.

11 And it depends on the ranking of the
12 vessel head. And I can get into those details if you
13 are interested.

14 Q As far as visual -- well, let's talk about
15 the non-visual. What are, generally, what are non-
16 visual inspections of a vessel head?

17 A Non-visual inspections are conducted from
18 beneath the reactor vessel head. So you are at the
19 inside surface. And there they use robotic equipment,
20 generally it is ultrasound, and it is supplemented
21 with eddy current probes.

22 And those are done from the inside
23 surfaces, and they are examining the same area of
24 interest, which is adjacent to the J-groove weld, and
25 they are done from the inside of the nozzle.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 So the ultrasound is done from there, as
2 well as eddy current, to try to detect evidence of
3 cracking in any of the nozzles.

4 JUDGE FARRAR: So the record is clear,
5 could you tell us what eddy current is?

6 THE WITNESS: Okay. Eddy current is,
7 basically, induced currents in the -- in a metallic
8 object, induced by a changing magnetic field. There
9 is a coil that is inserted inside the tube, and that
10 coil then, as it passes through, it induces a magnetic
11 field in the material.

12 If there is a crack it disrupts the flow
13 of eddy currents, and changes that inductive coupling
14 between the tube material, and the coil, and that
15 change in inductive coupling, then, can be measured by
16 instruments and seen as a flaw, if you will.

17 On the latest technology it is a very,
18 they can make a very graphic representation of a flaw
19 with this equipment.

20 BY MR. GHASEMIAN:

21 Q As compared to a visual inspection, is it
22 more or less difficult to do the non-visual
23 inspection?

24 A It is much more of a challenge to do the
25 non-visual inspection. There is only a few

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 contractors that can support that, with the required
2 specialized equipment, properly trained personnel.

3 And, again, this is very specialized
4 equipment, because it is robotic, to minimize the
5 dose, the equipment needs to be positioned with
6 robots, from underneath the head.

7 And the people that do this inspection
8 have to have specialized training, and it takes,
9 again, a lot of resources to schedule and set up that
10 equipment.

11 And, again, because it can only be done by
12 a select group of vendors, it needs to be done, or
13 planned in advance, so that you can set it up and
14 perform that type of inspection.

15 Q What type of -- when Davis-Besse did --

16 JUDGE FARRAR: Can I -- let me ask you one
17 more question.

18 MR. GHASEMIAN: Yes, Your Honor.

19 JUDGE FARRAR: I think you said that was
20 easier, that the visual is easier.

21 THE WITNESS: Visual is much easier.

22 JUDGE FARRAR: And I understand, I think
23 I understand the context in which you are saying that.
24 But in a sense, if you can get everybody set up to do
25 the non-visual, that becomes more efficient, once you

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 get the right people, and the right robots, and
2 everybody in there?

3 THE WITNESS: Yes. If you suspect that
4 you are going to have a problem at the plant, that is
5 what is in the higher likelihood the crack, you would
6 generally arrange to have that equipment on standby,
7 or available, so that if you detected evidence of
8 leakage you would confirm it, maybe, with the non-
9 visual equipment, that that leakage was from a crack.

10 So they might do that. Or if they had
11 enough confidence in the visual, they might go
12 directly to repairs. But that is, usually, not the
13 case.

14 JUDGE FARRAR: Are you going to have more
15 confidence in your non-visual results than your
16 visual?

17 THE WITNESS: Generally, yes. They like
18 to confirm the visual results with a non-visual,
19 because non-visual is much more definitive, because it
20 definitely shows material that has been degraded,
21 versus potential indications of leakage, of
22 degradation.

23 BY MR. GHASEMIAN:

24 Q What did Davis-Besse use for vessel head
25 inspections, what method, what technique?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 A For many years they used to rely, solely,
2 on visual examinations.

3 Q And the purpose of the visual head
4 inspection, what are they looking for when they are
5 doing that?

6 A They are looking for evidence of leakage,
7 vessel head penetration leakage. And, again, the
8 visual exams were also done to support the boric acid
9 program.

10 This is a more general and broad program
11 that applies to basically all the carbon steel
12 components in areas in the reactor coolant system that
13 are susceptible to corrosion.

14 So the boric acid program preceded the
15 specific programs that are focused on the vessel head
16 penetration nozzles.

17 Q Going to Staff Exhibit number 53, what are
18 we looking at here?

19 A What you are looking at is a view of a
20 reactor vessel head, and this is in the area of
21 interest.

22 So we are looking at the exterior surface,
23 here, that is the domed surface of the vessel head.
24 This is the vessel head penetration nozzle. And of
25 particular interest are deposits that form at the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 interface.

2 This would be the classical popcorn type
3 deposits that are indicative of leakage at that
4 nozzle.

5 Q Now, while conducting a visual inspection
6 of the head, with the technique of having a camera on
7 a stick, what are the components that are looked at?

8 A With the camera on the stick, again, this
9 is the area of interest. So you are trying to examine
10 this head penetration interface for each of the vessel
11 head penetration nozzles.

12 Q Is there any other parts of the vessel
13 head that you end up looking at?

14 A Yes, the current requirements, the current
15 Order, is an inspection of the entire surface of the
16 head, in between all these control rod drive
17 mechanisms, and to an area several inches away,
18 outside the ring that would form the periphery of the
19 control rod drive mechanism.

20 So you are looking for evidence of
21 corrosion on the exterior surface, as well as evidence
22 of leakage at the interface area.

23 MR. WISE: Judge, I'm sorry to interrupt,
24 if Mr. Holmberg said this, I apologize, I may have
25 just missed it. I just want to make sure that the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealgross.com

1 record is clear, where that photograph is from.

2 JUDGE FARRAR: I don't think we did say.

3 THE WITNESS: If they showed me a picture
4 and that is what it typically --

5 MR. GHASEMIAN: Your Honor, it is a photo
6 that was sent to various individuals, I believe
7 including Mr. Geisen. But it was an email that was
8 sent within Davis-Besse, Mr. Ghasemian is the
9 recipient as well.

10 But we will refer to it later on. But
11 since it is already in the record, we thought that we
12 would just refer to the photo itself.

13 THE WITNESS: It says photo of the Crystal
14 River vessel head penetration, it is what it entitled,
15 right there in the email. So I'm assuming that is
16 where it came from.

17 JUDGE FARRAR: Okay, fine. I think that
18 was, Mr. Wise, that answers your question?

19 MR. WISE: It does, Your Honor, thank you.

20 MR. GHASEMIAN: Thank you, Your Honor.

21 BY MR. GHASEMIAN:

22 Q Now, are you familiar with bulletin number
23 2001-01?

24 A Yes.

25 Q And what was it about?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 A The bulletin was issued shortly after
2 finding cracking at the Oconee sites. The Oconee
3 sites experienced cracking at their units, and of
4 note, there was cracking identified that was basically
5 unexpected.

6 Before the experience at Oconee, this was
7 in the late 2000 time frame, and early 2001. The
8 cracking was thought to be almost exclusively axial,
9 and confined, basically, to the base materials.

10 What Oconee showed was that the cracking
11 occurred, also, in that J-groove weld. And that the
12 cracking was circumferential in nature.

13 And that posed a more serious concern to
14 the NRC, because of it now potentially represented a
15 configuration that you could reach a structurally
16 limiting condition, maybe, before you would even
17 detect the leakage on the surface.

18 So the bulletin was issued to express our
19 concern and, also, to express what we expected
20 licensees to do about that concern. Specifically it
21 discussed the ranking of your plant into the three
22 bins, the high, the moderate, and the low bin.

23 And then it expressed our views on what
24 acceptable methods would be for conducting
25 examinations of the reactor vessel head in response to

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 that concern.

2 Q And when you are talking about the
3 different bins, the high and low bins, what were the
4 criteria that -- excuse me?

5 A Do you want me to elaborate on that?

6 Q Well, just briefly, just brief criteria as
7 far as how a plant ended up in the --

8 A They ranked them based on their effective
9 full power years, with respect to the onset of the
10 Oconee condition. So they looked at how many
11 effective full power year the Oconee units had been
12 operating.

13 And then they had the plants compare
14 themselves to that and measure if they were within
15 five years of the Oconee service condition, they were
16 put in the high susceptibility bin.

17 Or if they had actually experienced
18 cracking, or leakage of any kind, they were put in the
19 high susceptibility bin.

20 And then the moderate was between -- if
21 you were within 30, between 5 and 30 EFP, effective
22 full power years of the Oconee condition, you were in
23 the moderate.

24 And then below that was the low
25 susceptibility, you were further out, 30 years from

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 the service condition at Oconee.

2 JUDGE TRIKOUROS: The deposits that we saw
3 in the previous photo of Crystal River, were those
4 from an axial crack, or a circumferential crack?

5 THE WITNESS: Again, I'm not familiar with
6 the specific nozzle they are showing there, so it is
7 a little hard for me to tell. But I'm fairly sure
8 that they were predominantly -- you know, in that time
9 frame the big one was Oconee.

10 I don't recall any of the other plants
11 that experienced leakage coming up with big
12 circumferential indications. Oconee worried people
13 because of the extent of the circumferential
14 indication went about 165 degrees.

15 So, roughly, almost half the circumference
16 was cracked. And even though they referenced ANO in
17 that same bulletin, the 2001-01, I don't recall any
18 other plants coming up with large circumferential
19 indications, such as the Oconee units.

20 JUDGE TRIKOUROS: Would axial cracks also
21 produce popcorn-like deposits?

22 THE WITNESS: Absolutely, yes.

23 JUDGE FARRAR: In terms of your rankings
24 into the high, moderate, and low, was one of the
25 factors that went into that the presence or absence of

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 some way to look at the reactor head, other than
2 through the weep holes, namely the portholes, or
3 whatever you have called them?

4 THE WITNESS: What the bulletin asked was
5 for a specific description of your plant, specifically
6 the area around your insulation structure, and to
7 explain your examination techniques and methods.

8 And it told about our expectations for
9 doing an effective or qualified visual exam. And if
10 you weren't able to do that, our expectations that you
11 do a qualified non-visual exam, using things like
12 ultrasound.

13 So that is what the bulletin weighed out.
14 Does that answer your question?

15 JUDGE FARRAR: How many -- yes. How many
16 facilities had only weep holes?

17 THE WITNESS: I can't answer that. For
18 our region, that is region 3, that encompasses roughly
19 a third of the operating plants in the U.S., the only
20 one of the similar design to Davis-Besse, we only have
21 B&W, Babcock & Wilcox design plant, Davis-Besse.

22 So there are other regions that have more
23 units that are of similar design. But I can't answer
24 the question about how many others have the same, you
25 know, inspection type of configuration as Davis-Besse.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 JUDGE FARRAR: Go ahead.

2 BY MR. GHASEMIAN:

3 Q Now, in the context of 2001-01 bulletin,
4 what does 100 percent visual head inspection entail?

5 A The 100 percent visual was 100 percent of
6 the vessel head penetration nozzles, was our
7 expectation for the inspection. And that would be an
8 effective visual inspection, or qualified visual
9 inspection.

10 And that the nuance there is that those in
11 the high susceptibility bin needed to have an
12 additional action, in addition to an effective visual
13 inspection, completed by December 31st of that year,
14 2001.

15 That additional thing was a plant specific
16 analysis, to demonstrate that you would have
17 sufficient leakage to be able to see it. And I need
18 to kind of regress here, a little bit.

19 The concern was that there is an
20 interference fit. And, again, that model might be the
21 best thing to show. But the interference fit, the way
22 the nozzles are made, is the vessel head penetration
23 nozzle, during fabrication, is machined to an exact
24 tolerance, it is exactly four inches in diameter,
25 outside diameter, and --

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 Q Mr. Holmberg, let's look at the model.
2 This is Staff Exhibit number 82, I believe.

3 A So the diameter, the cross section, here,
4 is exactly four inches. Now, the hole that it goes
5 through, in the vessel head, is slightly smaller. And
6 so when you take this down to -140 degrees, liquid
7 nitrogen temperatures, it shrink this nozzle.

8 So then it is, then, inserted into the
9 head, and allowed to warm up and expand. So now
10 you've got an interference fit, a friction fit, in
11 between here and the vessel head material.

12 And what they were concerned with is if
13 that interference fit persisted to normal operating
14 temperatures, that there would be sufficient
15 obstruction that the leakage would never reach the
16 surface.

17 So that was the concern. So the plants in
18 the high bin had to do a plant specific analysis to
19 demonstrate that that interference fit would not exist
20 at normal operating temperature, in addition to the
21 expectation they do an effective inspection.

22 So that combination is called a qualified
23 visual inspection, having both those pieces in place.

24 Q Now, in the context of, again, in the
25 2001-01 bulletin, what does a whole head inspection

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 mean to you?

2 A To me that means they were able to examine
3 each of the vessel head penetration nozzles, in the
4 area of interest, and determine that those nozzles
5 were not leaking, using an effective or qualified
6 visual exam technique.

7 Q If each nozzle inspected by visual
8 examination, coupled with a finding of no evidence of
9 leakage, what does that tell you about the condition
10 of the nozzle?

11 A That it was in a condition that
12 facilitated you to perform the examinations.
13 Specifically 2001-01 says that that examination should
14 not be compromised by the presence of insulation, or
15 debris, or anything else that could mask your ability
16 to detect those popcorn-like deposits at the interface
17 location.

18 Q To say that the entire vessel head was
19 inspected, what does that mean, to you?

20 A To me that means that you completed the
21 inspection the bulletin expected, that each of the
22 vessel head penetrations was free of evidence of
23 leakage.

24 Q Okay.

25 MR. GHASEMIAN: We are going to move on

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 and review some videos of the 2001 inspection, the
2 2000 cleaning of the vessel head. And I will beg your
3 patience, Your Honors, it won't be that long, but
4 along the way I will pause and ask some questions.

5 JUDGE FARRAR: Before you do that, tell me
6 some more about the interference fit, and why they
7 wouldn't all have the problem you have, that you
8 mentioned of it being so tight that you wouldn't see
9 any leakage even if there was a crack.

10 THE WITNESS: Again, it gets to very
11 specific plant fabrication techniques. So they would
12 have to look at their as-machined tolerances, and they
13 would have to look at their specific head
14 configuration, and then determine whether or not, with
15 the expected thermal expansion and heat-up effects,
16 would that dilate the hole sufficiently that you now
17 would expect that gap to actually be free and clear
18 when you reach, you know, nominal operating
19 temperature of the head.

20 Which, for Davis-Besse, is 605 degrees or
21 so. So that was the, you know, the purpose of doing
22 the analysis. But why wouldn't all the plants have
23 that same problem?

24 Again, different plants are designed by
25 different vendors --

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 JUDGE FARRAR: I didn't mean all the
2 plants, I meant all the penetrations in a particular
3 plant.

4 THE WITNESS: Well, again, each
5 penetration nozzle goes through the head at a little
6 different area. Some are close to the periphery, near
7 the flanges, and the domed head itself, you know,
8 expands and grows a little.

9 You know, depending on where you are at,
10 it will be a little different. So the analysis would
11 have to demonstrate that for the penetrations, in
12 different locations on the head.

13 JUDGE FARRAR: Okay, fine, thank you.

14 MR. GHASEMIAN: I'm going to need some
15 help, I think, from Andy. That video isn't coming up
16 on my screen, on my laptop. It was before, but not
17 now.

18 JUDGE FARRAR: Off the record.

19 (Whereupon, the above-entitled matter
20 went off the record at 11:41 a.m., and
21 went back on the record at 11:43 a.m.)

22 JUDGE FARRAR: Back on the record.

23 BY MR. GHASEMIAN:

24 Q Mr. Holmberg, we are going to go through
25 the 2000 Davis-Besse cleaning of the vessel head

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 video. And we won't go through all of it, but only
2 certain portions of it.

3 And I will pause along the way and ask you
4 some questions, based on what we are looking at.

5 (Video presentation.)

6 BY MR. GHASEMIAN:

7 Q What did we just see, and what are we
8 looking at now?

9 A It looks like the inside surface of
10 containment, but I'm not sure.

11 Q We are at 20 seconds. Can you tell what
12 that is?

13 A It looks like you are over the refueling
14 cavity, but I'm trying to see where you are -- if you
15 could pan it down so I can confirm where you are going
16 here.

17 Q I mean, I can't control it.

18 A There we go, okay.

19 Q We will pause in a few seconds and then I
20 will ask you some questions.

21 (Video presentation.)

22 BY MR. GHASEMIAN:

23 Q What are we looking at? We are at 46
24 seconds.

25 JUDGE FARRAR: Wait, Mr. Ghasemian, I'm

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 sorry, I forgot. Did we mention this exhibit number?

2 MR. GHASEMIAN: This is -- yes, Your
3 Honor, it is Staff Exhibit number 81, it is a DVD of,
4 which includes all the inspection videos from '96,
5 '98, and 2000, and also the -- some of the cleaning
6 videos.

7 JUDGE FARRAR: Before we continue showing
8 that, tell Mr. Holmberg, for the record, when you do
9 this inspection, where has the facility moved the
10 vessel head to, in relation to where the reactor
11 remains?

12 THE WITNESS: Okay, I can answer that.
13 The vessel head is removed and placed on what they
14 call a head stand, usually adjacent to the refueling
15 area.

16 JUDGE FARRAR: To the side, not --

17 THE WITNESS: Yes, on the side --

18 JUDGE FARRAR: You don't just lift it
19 straight up?

20 THE WITNESS: Lift it up and then move it
21 to the side, and set it down on the head stand.

22 JUDGE FARRAR: Okay. And was that what we
23 were seeing, that video that we just had?

24 THE WITNESS: Yes, he was getting to, I
25 think a different inspection he was trying to show,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 not at --

2 ADMINISTRATIVE JUDGE FARRAR: Go ahead.

3 BY MR. GHASEMIAN:

4 Q Okay, what are we looking at?

5 A This is a platform that is erected above
6 the control rod drive mechanism. So this would be at
7 the very top of the head assembly. And you've got
8 staff located here and here, and they are lowering
9 equipment down into the control rod drive mechanisms.

10 Typically that would be the area that you
11 would access if you were conducting an inspection of
12 the flanges, you would lower it down from the top
13 area.

14 JUDGE FARRAR: And this is all taking
15 place in that area you just described to me?

16 THE WITNESS: Yes, typically they place it
17 on a head stand. But from this, I want to make sure
18 -- yes, they set it up on a head stand adjacent to the
19 reactor, where it is normally located.

20 JUDGE FARRAR: Okay, thank you.

21 BY MR. GHASEMIAN:

22 Q Now, we have moved onto 1 minute into the
23 video, and what are we looking at now?

24 A You are looking at a shot panning down, so
25 you are looking at the area they would conduct the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 inspection from. This is covering it up, but this
2 area right here would be the vessel flange.

3 And then the service structure, this area
4 around here, would be the service structure that
5 surrounds the control rod drive mechanisms.

6 And then here are lead blankets that cover
7 your view of, like, the weep hole locations where the
8 actual inspections are conducted for the bare metal
9 head inspection.

10 Q Now we are going to go forward a few
11 minutes to 21:26. Start at 21:25.

12 (Video presentation.)

13 JUDGE FARRAR: Mr. Ghasemian, these
14 reference numbers you are giving us, they aren't
15 showing up on the screen?

16 MR. GHASEMIAN: I think you may not -- I
17 think you will see them on your monitor.

18 JUDGE FARRAR: Oh, down there, okay, fine.
19 Thank you, Ms. Sexton.

20 BY MR. GHASEMIAN:

21 Q What were we looking at before?

22 A What you are looking at is, again, this is
23 the area that we mentioned before. They are kneeling
24 adjacent to where the reactor vessel flange is, on the
25 outer perimeter of the head.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 And they are inserting a pole through the
2 weep holes.

3 Q Okay. Let's go to 23 minutes. We are
4 going to play it for about almost a minute, and then
5 we will be discussing it.

6 (Video presentation.)

7 BY MR. GHASEMIAN:

8 Q Okay, what are these individuals doing?

9 JUDGE FARRAR: Let me interrupt. That
10 audio that we heard, Erick, did you get that? That
11 was audio from the --

12 MR. GHASEMIAN: From the video inspection.

13 JUDGE FARRAR: And before you ask your
14 next question, how big are these weep holes?

15 THE WITNESS: Roughly five by seven
16 inches.

17 BY MR. GHASEMIAN:

18 Q Now, we've stopped at 23:57. What were
19 these two individuals doing?

20 A The individuals are conducting a visual
21 inspection through the weep holes, as we heard on the
22 audio. So they've got a camera that is taped to a
23 pole, that is inserted up through the weep hole, and
24 they are looking at the monitor for the camera, here,
25 so they can observe where they are trying to position

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 the camera on the head.

2 Again, it is pitch black, there is no
3 lighting in there. So the camera has a light source,
4 and power to operate the camera. And the way that
5 they tell what they are looking at, is by monitoring
6 it on this monitor here.

7 (Video presentation)

8 MR. GHASEMIAN: Now we have moved ahead to
9 25:09. I will play that for a few seconds. We have
10 stopped at 25:15.

11 BY MR. GHASEMIAN:

12 Q Can you tell what the individual, that is
13 most prominent in this image, was doing?

14 A I believe there is an individual down
15 here. They are in the process of cleaning the head.
16 And I believe, for this video, they were using water
17 as well as mechanical means, bars, crow bars, to break
18 loose the boric acid.

19 So I think he is cleaning or vacuuming up
20 the water that is running down there.

21 JUDGE FARRAR: Which year is this?

22 MR. GHASEMIAN: It is 2000, Your Honor.

23 (Video presentation.)

24 BY MR. GHASEMIAN:

25 Q Now, what is -- there is an individual

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 reaching in. What is he reaching into?

2 A I believe, at this point, he is trying to
3 remove chunks of debris which, I believe, are boric
4 acid that has been accumulating on the reactor vessel
5 head.

6 (Video presentation.)

7 JUDGE HAWKENS: It appears that there are
8 white streaks on the surface. Is that boric acid
9 buildup?

10 THE WITNESS: At this point the streaks,
11 they are using water to clean the head, so as the
12 water runs down, and out the weep holes, it would
13 carry with it any boric acid that it encountered, and
14 stain or streak the head.

15 JUDGE FARRAR: Do you have any idea how
16 long, roughly, one employee would be allowed to do
17 that work, given the radiation dosage?

18 THE WITNESS: Every plant has a little
19 different program. But they try to minimize the
20 dosage. So what they do is they pre-plan a job, and
21 they determine how long the job will take.

22 And then, based on that, everybody has,
23 you know, a certain dose limit that they try to
24 control. And they use administrative limits that are
25 far below the NRC allowed regulations.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 They are not going to approach 5 rem, or
2 anything like that. So it is a much lower dose than
3 our regulatory limits.

4 JUDGE FARRAR: But might you need to use
5 people who are not particularly skilled in this work,
6 because you have to have a certain number of people so
7 the dose --

8 THE WITNESS: Yes, it is -- with that lead
9 shielding it is, actually -- I have been out there,
10 standing next to them. I don't actually pick up that
11 much dose.

12 It is not, I mean, it is a dose area so
13 they try to minimize it. But it is not so much dose
14 that you are going to worry about burning people out.
15 So it is not, typically, in that category of
16 evolution.

17 JUDGE FARRAR: Thank you.

18 MR. GHASEMIAN: We will continue on the
19 video.

20 (Video presentation.)

21 BY MR. GHASEMIAN:

22 Q Now, what are they doing now? We stopped
23 at 25:57.

24 A Yes, you can see them using the bars in
25 there. They are chipping away at the deposits on the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealgross.com

1 head. You can see water streaming out, you can see a
2 vacuum. They are trying to catch the debris, and the
3 water, and collect all that material, as they conduct
4 this cleaning.

5 Q What are they using to chip away the --

6 A It looks like, basically, just a big
7 crowbar, essentially, a steel bar.

8 JUDGE HAWKENS: Is this weep hole actually
9 filled with an accumulation of the buildup, the
10 deposit, or is it just the deposit on the side they
11 are trying to remove?

12 THE WITNESS: Well, at this point they are
13 inside the weep hole, but it is actually pretty close
14 to the periphery of the vessel, here. So there must
15 be a deposit right -- just inside the weep hole, the
16 way they are chiseling at it, yes.

17 JUDGE HAWKENS: And a significant deposit?
18 I'm trying to --

19 THE WITNESS: Yes, we kind of stepped
20 through, a little more closely, in some of the frames.
21 You can see them take out, you know, a deposit that is
22 big enough to put in the guy's hands.

23 So I don't want to -- you know, something
24 the size of a big snowball he is trying to pull out
25 through the weep hole.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 MR. GHASEMIAN: We will continue a few
2 more seconds.

3 (Video presentation.)

4 BY MR. GHASEMIAN:

5 Q We stopped at 27:00. Can you tell the
6 individual at the top of the screen, what he has in
7 his hand, what he is doing? I will play it a little
8 bit so --

9 (Video presentation.)

10 THE WITNESS: I can go ahead and answer,
11 if you would like.

12 BY MR. GHASEMIAN:

13 Q Okay, go ahead.

14 A I believe he is injecting the water source
15 at that location, trying to wash the head down.

16 (Video presentation.)

17 THE WITNESS: There, you can see.

18 BY MR. GHASEMIAN:

19 Q Is that what you were referring to,
20 earlier?

21 A That is what I was referring to. If you
22 look right there, watch, you will see a fairly
23 substantial sized chunk of white deposit.

24 Q We are at 27:32.

25 A He is having trouble moving it through the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 five by seven opening, so that gives you some sort of
2 sense of scale.

3 (Video presentation.)

4 BY MR. GHASEMIAN:

5 Q In your experience, have you seen vessel
6 heads that required this type of head cleaning?

7 A No, I have not.

8 Q Looking at this cleaning video tape, what
9 does it tell you about the quantity of boron in the
10 vessel head?

11 A That there was substantial deposits of
12 boric acid that they had to remove during that outage.

13 Q Now, is this type of video helpful in your
14 vessel head inspections?

15 A It gives, you know, it gives me an idea of
16 how they conducted the inspection. But if it is one
17 that we observe under our inspection program, we would
18 basically be standing there with them, on the
19 platform, and of course, today they have other
20 technology where they have remote cameras, that feed
21 outside the containment tubes.

22 Q Does the using of water, how does that
23 influence your view of the vessel head?

24 A You could not conduct the effective or
25 qualified inspections after conducting the water type

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 inspection. At least you wouldn't have one that
2 represented the potential for leakage from the
3 previous outage.

4 Because when you use those mechanical
5 methods, and wash down the head, you are removing any
6 evidence of leakage by using those techniques.

7 JUDGE HAWKENS: May I ask a question? You
8 had said that in your experience you had not seen this
9 about of boric acid buildup.

10 Is that experience just based on your
11 experience as an inspector in region 3, or is it based
12 on your knowledge of reactors throughout the nation?

13 THE WITNESS: It is based on my experience
14 in Region 3. I have been at, like I said, well over
15 a dozen head inspections. And, of course, I know
16 about the results from other people that conduct
17 similar inspections in our region.

18 So I have never heard of anything like
19 that, in the plants in our region. Outside our
20 region, again, I have never heard of that magnitude of
21 boric acid deposits on the head.

22 But my, you know, my information drops off
23 once I'm outside the sphere of reactors that are
24 reported on, and described, basically at our daily
25 status meeting in region 3.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 JUDGE HAWKENS: Thank you:

2 BY MR. GHASEMIAN:

3 Q Now, did there come a time that you were
4 asked to review past inspections video of the Davis-
5 Besse vessel head?

6 A Yes, I was asked by our Office of
7 Investigations, working with the Department of
8 Justice, to review some videotapes of the Davis-Besse
9 head examinations, yes.

10 Q And when was that?

11 A I did the reviews back in 2006. I
12 completed those reviews the first week in August of
13 2006.

14 Q And how did you go about doing those
15 reviews?

16 A The way I conducted the reviews is I went
17 through -- these were digital files that I was able to
18 use, working at my computer; view the files, view the
19 cleanings, and step through them in a frame by frame
20 fashion, so that I could carefully screen and observe
21 where they were at on the reactor vessel head.

22 And then I developed a report, in a
23 tabular format, and it set up, in a series of columns,
24 and the report included -- the first column was the
25 view, that would be the weep hole number that they are

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 going through.

2 So that gives you your column, it
3 identifies the weep hole number. The second column
4 was a time log, where on the tape that that view was
5 taken from.

6 And then the third column was whether I
7 felt that that view showed that that nozzle was in a
8 condition that you could determine that it was not
9 leaking.

10 And then I had a remarks column. And so
11 that was, basically, the tabular format. And I
12 stepped through it, every single nozzle penetration,
13 that I could view on the tape, and get the interface
14 region, was the subject of my report.

15 So I was able to compile the report that
16 identified how many nozzle interfaces were viewed on
17 each of the tapes, and how many of those interfaces
18 were in a condition that you could make a
19 determination that the nozzle was not leaking.

20 Q What did you conclude regarding the scope
21 of the video inspections?

22 A None of the video inspections covered all
23 of the nozzles, the 69 vessel head penetration
24 nozzles. For instance, the 1996 time frame was the
25 first couple of tapes that I reviewed, and that

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 attained the highest number of vessel head penetration
2 locations.

3 From the tapes that I reviewed I was able
4 to identify a total of 51 vessel head penetration
5 interface locations that could be viewed on the tape.
6 And, of those, 28 were in a condition that you could
7 make a determination, or say, that that was not a
8 location indicative of leakage.

9 Q And how did that compare to the number of
10 nozzles that was represented to have been inspected in
11 their responses?

12 A I read the response that Davis-Besse
13 provided, there are several responses in response to
14 the bulletin 2001-01. I believe it is serial number
15 2744, I can double check the number there.

16 But in that response I believe they stated
17 that they got 65 of the 69 penetration nozzle
18 locations that were inspected for the 1996 time frame.

19 Q We have the results of your review in our
20 Staff Exhibit number 69, and we will discuss that
21 later on.

22 MR. GHASEMIAN: Your Honor, this may be a
23 good juncture for a break. We are going to move onto
24 reviewing some other videos in 1996, and it is a
25 little bit past noon, if you were thinking about

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealgross.com

1 taking a break, this may not be a bad point in time.

2 JUDGE FARRAR: The only problem is if you
3 take a break now people will stand in line, in the
4 cafeteria, for 35 minutes trying to --

5 MR. GHASEMIAN: Well, we can go through --

6 JUDGE FARRAR: No, I just want to say that
7 so people -- how long a break do you think we need for
8 lunch? I was thinking an hour and a quarter, but
9 depending on how much preparation people need to do,
10 or how much time they want to take.

11 Or did you mean just take a short break?

12 MR. GHASEMIAN: No, I mean, whatever you
13 desire. We can take a lunch break, or just a short
14 break, either way.

15 JUDGE FARRAR: How much more examination
16 do you have?

17 MR. GHASEMIAN: With Mr. Holmberg probably
18 another couple of hours, two to three hours, I
19 suspect. A couple of hours.

20 JUDGE TRIKOUROS: Is this a good break
21 time?

22 MR. GHASEMIAN: Yes, I would imagine it is
23 a good time.

24 JUDGE FARRAR: All right. You made me
25 nervous with that three hour reference, since we

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 talked about a half a day, and we are going to finish
2 this week.

3 Why don't we take -- it is almost ten
4 after, why don't we take an hour and 20 minute break,
5 or we --

6 MR. WISE: Judge, we can do an hour, if
7 the Court wants. I mean, we can be back here by one.

8 MR. GHASEMIAN: That is fine with the
9 Staff.

10 JUDGE FARRAR: Can you? Okay. Then let's
11 make it 1:15, which is just a little more than an
12 hour. We will come back at 1:15.

13 Before we break we wanted to let the Staff
14 know, in terms of your last witness, Mr. O'Brien, when
15 he gets on the stand, toward the end of the week, we
16 would like him to be prepared to discuss not only the
17 factors that went into the sanction that the Staff
18 imposed on Mr. Geisen, but since we don't have a whole
19 lot of these cases for reference, have him prepared to
20 talk about other people in this case, who were
21 charged, or not charged, and any historic cases that
22 might provide us a good reference.

23 Obviously we don't need as long a
24 discussion, but as we try to, you know, we don't have
25 -- let me back up.

1 Mr. Wise, this is -- this does not,
2 obviously, indicate that we have made any
3 predetermination that charges were justified at all.
4 But in the event that they were, in terms of what the
5 sanctions should be, we don't want to finish the case
6 and not have this information.

7 So by asking, by suggesting this question,
8 it is no indication of a determination on the merits
9 of the first question, but we want to make sure, as to
10 question two, I can call it that, we are fully
11 informed.

12 So if Mr. O'Brien can spend the next
13 couple of days making sure he is up on the -- anybody
14 involved in this case, charged or not charged, and
15 historic cases.

16 MS. CLARK: Your Honor, that does bring up
17 one issue that I wanted to raise. Originally we had
18 intended to present all of our witnesses first, and
19 have Mr. Geisen be the last witness.

20 But since we know that you will be
21 questioning Mr. O'Brien, and you wanted him at the
22 end, I had discussed this with Mr. Wise, and we had
23 thought, under the circumstances, we would have Mr.
24 Geisen testify before Mr. O'Brien, and have him be
25 last.

1 JUDGE FARRAR: Mr. Wise, if that is fine
2 with you, that we had, in fact, talked about that
3 among ourselves, because otherwise you end up asking
4 Mr. O'Brien a hypothetical that, you know, if we find
5 this what would you have decided.

6 So that is an excellent suggestion. So he
7 will be, then, presumably our last witness after Mr.
8 Geisen. Fine, a great suggestion, it should make
9 things go more smoothly and intelligibly.

10 All right, then, having used some of the
11 break we will still come back at 1:15. Thank you.

12 (Whereupon, at 12:12 p.m., the above-
13 entitled matter was recessed for lunch.)

14 JUDGE FARRAR: We're back on the record
15 for the afternoon session. Ms. Clark, one of my
16 colleagues, suggested, although I thought it was
17 implicit that we make explicit for the sequestered
18 witnesses that not only are they not supposed to be
19 watching in the courtroom or on the web stream, or on
20 the broadband, but also not talking to anybody who has
21 watched it. And that one of the sanctions, of course,
22 is not being allowed to testify, so we hope they will
23 take that with the utmost seriousness.

24 Mr. Ghasemian, any other preliminary
25 matters? Mr. Ghasemian, you were in the midst of

1 wrapping up your examination of Mr. Holmberg.

2 MR. GHASEMIAN: Yes, Your Honor. Just to
3 tell you what we're going to see, we're going to watch
4 portions of the '96 inspection, and portions of the
5 2000 inspection, and we'll finish off with reviewing
6 one other exhibit. And, meanwhile, I'll ask Mr.
7 Holmberg some questions.

8 JUDGE FARRAR: All right.

9 MR. GHASEMIAN: Before we start the '96
10 inspection, I was going to ask Mr. Holmberg to
11 approach the model, and show us some parts of it, if
12 he's allowed to.

13 JUDGE FARRAR: Fine. Certainly. Go
14 ahead, sir.

15 THE WITNESS: Okay. Can you hear me?

16 BY MR. GHASEMIAN:

17 Q Mr. Holmberg, have you had an opportunity
18 to review the 1996 and 2000 video inspections for the
19 Davis-Besse vessel head?

20 A Yes, I did.

21 Q And what -- I think we discussed it
22 briefly, they conducted a visual inspection. Is that
23 correct?

24 A That is correct.

25 Q And the technique that they used was they

1 put a camera on a pole and they inserted it in the
2 mouse holes around the vessel head?

3 A That is correct, similar to the video tape
4 portion that we watched earlier.

5 Q Right. Could you -- there's a metal stick
6 by the -- yes. Could you kind of demonstrate briefly
7 what we'll be watching on these videos, what they're
8 doing?

9 A Okay. This metal pole or pointer here is
10 something that would represent the pole that is used
11 in the visual examination, and the utility would have
12 taped a camera at the end of this pole with a light
13 source, and then run the power cord along the pole.
14 And they would have stood adjacent to the flange here.
15 They had some staging that you saw in the earlier
16 video, and they would have then enunciated for the '96
17 time frame the stud hole number that they were either
18 standing on or adjacent to, and then they would have
19 inserted the camera on the pole up through the vessel
20 head, penetration nozzles to position the camera in
21 such a fashion as to get a view of the head surface
22 and, of course, in particular the head interface areas
23 to try to determine what was the deposits or the
24 condition of the head.

25 Q In the 1996 video, how far up did they get

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 -- generally, how far up did they get the camera?

2 A Okay. Based on my report that I did from
3 the '96 video, you can see if you start counting from
4 the peripheral here, there is one, two, three, four,
5 and then at the fifth point you're basically at the
6 center of the head. In general, they were able to get
7 the first one, two, in some cases third row up in
8 terms of getting to the interface area, but due to the
9 limitations of geometry, when you have the camera
10 taped to the end of the stick, you could see once you
11 get up passed this point, the camera isn't really
12 pointed, and it can't really be manipulated because of
13 the restrictions on the geometry such that it can look
14 now downward, if you will, at the areas of interest.

15 JUDGE FARRAR: Because the head is now
16 curving away?

17 THE WITNESS: It's curving away, so it's
18 out of your field of view, and you'll notice that on
19 the '96 video. So the bottom line is, the center-most
20 nozzle penetration locations, the interface areas were
21 not recorded on the video tape.

22 BY MR. GHASEMIAN:

23 Q And so they put that camera in there, you
24 said they know the number of the stud hole they're
25 standing on.

1 A Correct.

2 Q With the kind of forest of nozzles there,
3 how do you know which nozzle, and with the circular
4 numbering system you described before, how do you know
5 which nozzle you're looking at?

6 A And I believe he'll put that exhibit up.
7 And I think he's shown it already, it's that head map,
8 the top down view. Based on knowing what stud hole
9 position you're at, and then the view that you're
10 afforded as you position this in there, you'll get
11 views of the insulation support structure that's
12 holding the insulation up. And based on knowing where
13 the stud hole is they've enunciated, you can use that
14 head map to ascertain what view you're looking at.
15 And then, also, from that view determine which of the
16 penetration nozzles we're looking at. And that is the
17 most time-consuming portion of my review, was actually
18 making sure I understood the orientation and which
19 nozzles we viewed.

20 Q Okay. Thank you, Mr. Holmberg. You can
21 take your seat.

22 JUDGE HAWKENS: They could not go beyond
23 the third row because of a inherent limitation in the
24 inspection procedure, or they could not get beyond the
25 third hole because of a build-up of the boron?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 THE WITNESS: Can I approach the model
2 again?

3 JUDGE HAWKENS: Sure.

4 THE WITNESS: Basically, the limitations
5 of the inspection technique precluded getting to the
6 camera in a position that you could look and see the
7 center-most penetrations of the interface area. Now,
8 in addition to that, there were -- in the 2000 time
9 frame -

10 JUDGE FARRAR: That's kind of because of
11 the tangent, the broomstick or pole becomes tangent -

12 THE WITNESS: Right.

13 JUDGE FARRAR: -- to the head. And then
14 it's pointing up in the air.

15 THE WITNESS: Yes. Yes.

16 JUDGE FARRAR: Instead of following the
17 head surface.

18 THE WITNESS: Exactly. And, in addition,
19 like I said, in the 2000 time frame, there was such a
20 build-up of boric acid that they basically could not
21 get the camera into significant areas of the head
22 because it physically blocked the camera, and
23 certainly blocked the view of the interface area.

24 JUDGE TRIKOUROS: Mr. Holmberg.

25 THE WITNESS: Yes, sir.

1 JUDGE TRIKOUROS: When you were reviewing
2 that video, did you have any sense about whether or
3 not that boron had gotten there as a result of flange
4 leakage, or other?

5 THE WITNESS: What I did, and when I did
6 the review, I had already basically, at that point,
7 participated in the augmented inspection team that
8 followed up, so I knew exactly where the leakers were,
9 so I knew the large majority of this boron, or boric
10 acid deposits I was seeing likely occurred from a
11 result of the nozzle leakage. And, certainly, some of
12 it could have come from flange leakage, so I didn't
13 really make any attempt to try to determine the source
14 of the boric acid. My evaluation was strictly looking
15 at whether you could view the interface area, and
16 whether or not you had such a view that you could make
17 the claim that that was not a leaky nozzle based on
18 the visual exam. So I didn't try to determine the
19 source of any of the boric acid in my reviews.

20 JUDGE TRIKOUROS: Had anyone at the NRC,
21 if not you, looked at -- I think there were something
22 like five or six identified flange leakers. Had
23 anyone actually looked at whether or not you could get
24 that quantity of boron from five or six leaking
25 flanges?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 THE WITNESS: Yes. The AIT, a portion of
2 our group that was on that augmented inspection team,
3 did review the history of flange leakage at Davis-
4 Besse, and to the extent that they could, try to
5 ascertain what role that played in the boric acid that
6 was found on the head. But really, what we looked at
7 was their history, and we also did some preliminary
8 calculations that showed something like one-one
9 thousandths of a gallon per minute leak from any
10 source, would ultimately result in 15 pounds of boric
11 acid build-up over the operating cycle. So it doesn't
12 take a large leak to produce fairly substantial
13 deposits in terms of gallons per minute leak, so it's
14 well below the minimum detectable by their leakage
15 methods that were in place. So I'm not sure if I can
16 answer all your questions about it, but that's the
17 extent that I know of that folks tried to determine
18 how much boric acid came from flange leakage.

19 JUDGE TRIKOUROS: If a leak occurs at a
20 flange location, you're going to get a flashing
21 fraction. My experience is that it's something like
22 45 percent, and it can be easily calculated. Then
23 about 55 percent of the water coming out would be
24 liquid, and would be able to come down through the
25 insulation into the head. And is your sense that that

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 would be sufficient to produce the quantity of boron
2 we're talking about? I'm trying to ascertain whether
3 or not it was fairly obvious that it couldn't have
4 been flange leakage, because I think the assumption
5 was made by everybody that it was flange leakage.
6 Right?

7 THE WITNESS: That was the assumption that
8 the site made, yes, that the source or the leak or the
9 deposits was from flange leakage. And as far as the -
10 - whether that much could build up down there, based
11 on the 2000 tape, I would have to -- I would have a
12 hard time associating that strictly with flange
13 leakage just from the standpoint that you'll see on
14 the video how it's basically filled almost the entire
15 cavity in there. And to fill that from above coming
16 through a little annular opening from the insulation
17 above, you would think it would choke itself off if it
18 was streaming down, at some point it would choke
19 itself off and not produce the quantities on the head.
20 But these are just kind of inferences. There really
21 was no systematic way to verify what you would see,
22 other than it would certainly be expected you would
23 see a lot of deposits above the insulation. And at
24 least as much, or more, perhaps, than you saw below on
25 the head. That would be kind of the gut feeling from

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 a leak big enough to build up large quantities of
2 boric acid.

3 JUDGE TRIKOUROS: But it would not be
4 unreasonable for someone at the time to believe that
5 it was, in fact, flange leakage that would cause this.

6 THE WITNESS: That's what they believed,
7 and as far as what's reasonable, that was the
8 prevailing, it was certainly the station belief.
9 That's what we gathered when we were on the AIT, but
10 everybody believed that that was the source of the
11 boric acid.

12 Now, to the extent that it was wishful
13 thinking or they convinced themselves of that, that's
14 all very subjective. My reviews didn't attempt to do
15 any detailed interviews of the site staff at that
16 point to try to understand their beliefs. There was
17 a number of folks that were talked to, but that was
18 not an area -- we got information. We were really
19 chronologically trying to gather what actually
20 occurred, and some of the softer issues we didn't get
21 into.

22 JUDGE TRIKOUROS: But you did ascertain
23 that something as small as a thousandth of a gallon
24 per minute could produce quantities of boron that were
25 that significant.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 THE WITNESS: In pounds, right. Yes.

2 JUDGE TRIKOUROS: So that is not a lot of
3 liquid to leak down CRD penetrations.

4 THE WITNESS: Correct. Yes. But keep in
5 mind, the further the liquid travels, the more it
6 would tend to dry out, evaporate the moisture away,
7 and basically become solid, because the head itself is
8 at elevated temperatures approaching 600 degrees plus,
9 and, of course, as you move further away from the
10 head, the temperatures drop off. But as liquid is
11 running toward the head, you're in a hotter, higher
12 temperature region, so you would expect things coming
13 from above to tend to dry out and solidify. So,
14 again, in perfect hindsight, we know that the source
15 was from below, and that is consistent with -- at
16 least a large portion of it was from the leakage of
17 the vessel head penetration nozzle. So to sit here
18 and say after the fact, oh, yes, of course, you could
19 tell it's from that, I don't want to jump right to
20 that. I want to say that I know that now, and it's
21 clear that that was a big source.

22 JUDGE TRIKOUROS: Well, do you really know
23 that now? At the time of the inspection, could you
24 say definitively that there was leakage from the CRDM
25 nozzle penetrations?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 THE WITNESS: Yes. We had a lot of good
2 physical evidence for that. Probably the biggest
3 thing was the cavity that was produced. It was
4 roughly five inches by seven inches. It was an
5 irregular shape, call it a small Nerf football kind of
6 size. Several pounds worth of iron had been removed
7 in an area immediately adjacent to a very large axial
8 flaw that had grown to the highest extent above the J-
9 groove weld of any of the nozzles. And that --
10 there's a lot of theories have been postulated about
11 how steam cutting actions, or whatever, but we
12 certainly had a lot of physical evidence to suggest
13 that that was the cause for that wastage of that
14 vessel head cavity, which means that you were
15 producing boric acid deposits in that same action, and
16 corrosion products.

17 JUDGE TRIKOUROS: I see. But it wasn't
18 intuitively obvious at the time of the inspection.

19 THE WITNESS: Right. At the time of the
20 inspections, these were done several years ago. The
21 key is was it intuitively obvious to the people
22 reviewing the tapes, that were using them in response
23 to the Bulletin 2000-101. And that is a little more
24 important question, because there, the application of
25 the video tapes is to say this shows that the nozzle

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealgross.com

1 penetrations weren't leaking. And that's the focus of
2 my review, was, is there evidence on there to show a
3 certain penetration does not have evidence of leakage.
4 And that was the purpose of my report, and that's what
5 I stuck to, is that type of conclusion, rather than
6 try to speculate on the source or the nature of the
7 boric acid deposits.

8 JUDGE TRIKOUROS: Thank you.

9 JUDGE FARRAR: Go ahead.

10 MR. GHASEMIAN: Okay. Now we're going to
11 watch the 1996 inspection video, 96-07.

12 JUDGE FARRAR: This is exhibit what?

13 MR. GHASEMIAN: This is Exhibit 81.

14 JUDGE FARRAR: Still part of 81.

15 MR. GHASEMIAN: Yes, 81. All the videos
16 are going to be part of 81, Your Honor.

17 (Video viewed.)

18 MR. GHASEMIAN: Did you understand what he
19 said here?

20 THE WITNESS: Yes. It was basically going
21 through hole two. And in this time frame, what
22 they're talking to when they talk holes, and you'll
23 hear it enunciated more clearly in other portions of
24 the tape, are the stud holes, the centric ring of
25 holes at the very periphery of the vessel flange.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 MR. GHASEMIAN: Should I start, Your
2 Honor?

3 (Video viewed.)

4 BY MR. GHASEMIAN:

5 Q What are we looking at there at 103?

6 A Okay. We've entered one of the weep
7 holes. The camera has panned in the upward direction,
8 so what you're looking at is the lower surface of the
9 vessel insulation here. This happens to be one of the
10 landmarks that I used to orient myself in doing a
11 review of this video tape, is a support structure, one
12 of those basically vertical or lines that are shown on
13 the head map that run behind the nozzle here, and they
14 support the insulation.

15 (Video viewed.)

16 BY MR. GHASEMIAN:

17 Q Okay. What just happened there?

18 A They just removed the camera from the weep
19 hole. It's kind of panned up -

20 JUDGE FARRAR: At what point on the -

21 MR. GHASEMIAN: We're at 118.

22 JUDGE FARRAR: Okay.

23 THE WITNESS: Removed the camera from the
24 weep hole, and they just left it hanging there. It's
25 kind of pointed in the upward direction. You're

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 looking at the insulation, or the lead shielding
2 blankets that are hung on the outside to reduce
3 exposure to the workers.

4 BY MR. GHASEMIAN:

5 Q That yellow shielding that we observed?

6 A Yes.

7 (Video viewed.)

8 BY MR. GHASEMIAN:

9 Q I'm going to go ahead to 158. Okay. What
10 are we looking at there?

11 A This would be a credited view of an
12 interface. This is the vessel head penetration
13 nozzle. This is the surface of the reactor vessel
14 head, and this is the area of interest. And, as you
15 can see, it's completely free of any masking deposits,
16 no evidence of popcorn deposits, so that would be
17 considered an acceptable view.

18 Q What if, from another view you saw like
19 basically the back side of this nozzle, and there was
20 boron deposited there. How would you consider this
21 nozzle?

22 A Okay. If a nozzle had something that
23 obscured the interface, if there were other deposits
24 that had covered any portion that I could observe in
25 that view, I would consider that an unacceptable

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 nozzle, and I would document in my table that
2 location, and why it was considered unacceptable.

3 Q But just based on what we're looking at,
4 the screen right now, that looks like a clean nozzle?

5 A That would be an acceptable view to make
6 that claim that that is not a leaking nozzle.

7 Q And what are we looking at here?

8 A Okay. These are nozzles that are further
9 up ahead. You'll notice -

10 JUDGE FARRAR: Where are we?

11 MR. GHASEMIAN: Excuse me, Your Honor,
12 224.

13 THE WITNESS: You'll notice piles of white
14 deposits. These white deposits are obscuring the
15 interface area for that nozzle. You can see they're
16 built up all around the back side of this nozzle, so
17 they're obscuring the interface on that nozzle, so
18 these two nozzle locations would be unacceptable in
19 that view.

20 BY MR. GHASEMIAN:

21 Q And when you say deposits, are they boron
22 deposits?

23 A Yes, they're white. They're
24 characteristic of boric acid deposits.

25 Q How would you characterize the amount of

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 boron that you see on the screen?

2 A Well, what you can do is the nozzle
3 diameter, as I mentioned before, is four inches, so if
4 you use that kind of as a scale, you're talking what
5 looks to be a build up of at least one to two inches.

6 Q By looking at the video, can one tell
7 whether there's popcorn-like deposits in that pile of
8 boron?

9 A No, I cannot tell if there's popcorn
10 deposits under that pile of boron.

11 JUDGE FARRAR: What was the word you used,
12 did you say "securing"? There's a word you use,
13 either "securing", or something like that.

14 THE WITNESS: Obscuring.

15 JUDGE FARRAR: Obscuring. Okay. Thank
16 you.

17 BY MR. GHASEMIAN:

18 Q And could you tell whether there is any
19 popcorn-like deposits underneath the boron there?

20 A No. The deposits prevent any
21 determination of whether there's evidence of leakage,
22 such as popcorn deposits underneath that.

23 Q Can you tell what the source of that boron
24 is?

25 A I cannot.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 (Video viewed.)

2 BY MR. GHASEMIAN:

3 Q Was that another instance of the person
4 calling the hole number?

5 A Yes. He's reiterating the hole number
6 that they're conducting the inspection, the stud hole
7 number that's adjacent to where they're conducting the
8 inspection.

9 MR. GHASEMIAN: And that was at 234, Your
10 Honor.

11 (Video viewed.)

12 MR. GHASEMIAN: We're at 403.

13 BY MR. GHASEMIAN:

14 Q Now, what are you looking at here?

15 Q Okay. Well, similar to our last view,
16 again you've got boric acid deposits building up that
17 obscure penetration nozzles. This is specifically
18 completely blocked. For this penetration nozzle, the
19 hole -- you can tell that it surrounds the back
20 surface interface area, obscuring any views of that
21 area. So, basically, these penetration nozzles would
22 be considered unacceptable. They would be documented
23 on my report as being viewed on the video tape, but
24 they would not be in a condition that you would make
25 a determination that that was not a leaking nozzle.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 Q Looking at the video right as you sit here
2 today, can you see any popcorn-like deposits?

3 A No. The classical popcorn deposits at the
4 interface area, no, there's none that are visible
5 there.

6 Q And can you tell whether there's any
7 underneath the boron?

8 A No, I can't.

9 Q So can you tell the source of the boron?

10 A No, I can't.

11 .(Video viewed.)

12 BY MR. GHASEMIAN:

13 Q What are we looking at now?

14 A Again, they panned upwards, so you're
15 looking at the under-surface of the insulation. The
16 insulation does have seams, so you can see the seams.
17 They're kind of outlined there. You also have, again,
18 the reinforcing or support members, the iron bars that
19 are crossing the head, span the head to support that
20 insulation structure. And, of course, you could see
21 the nozzles as they penetrate the insulation. There's
22 a small gap around the nozzles, and so any potential
23 leakage from flanges would have to pass down through
24 that region there.

25 MR. GHASEMIAN: We're going to jump

1 forward to 740.

2 (Video viewed.)

3 BY MR. GHASEMIAN:

4 Q What did he say there?

5 A He said stud hole 44-45. So, again,
6 according to my head map, that would orient me on the
7 head to where he had just positioned his camera. And
8 then based on the views and the insulation structure
9 from there, I can tell what nozzles I'm looking at.

10 (Video viewed.)

11 BY MR. GHASEMIAN:

12 Q What's the material that is visible on
13 this -- we're at 850. What's the material? Can you
14 tell what that is?

15 A This appears to be a less - how shall I
16 put it? It's not as thick a deposit, but it is
17 deposits. They're not bright white, but they -- over
18 time, boron deposits tend to turn a little bit brown,
19 so this may be indicative of older deposits. But it's
20 deposits of some kind built up on the head.

21 (Video viewed.)

22 MR. GHASEMIAN: This is the last segment,
23 Your Honor. We're going to 13.

24 (Video viewed.)

25 BY MR. GHASEMIAN:

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 Q So what did you hear there?

2 A Again, another stud hole, 29-30 was
3 designated.

4 (Video viewed.)

5 BY MR. GHASEMIAN:

6 Q Okay. If the person would not have called
7 out the stud numbers, or let's say there would be no
8 audio to this video, could you -- is it possible to
9 determine whether 100 percent inspection was performed
10 based on the review of the video tapes?

11 A Well, let me start by saying that it was
12 difficult to do a review of exactly where you're at,
13 and without the audible cues, that would make that
14 review that much more difficult. In thinking about
15 this, it may be possible to ascertain or do a review
16 with no audio cues. And, in fact, it should be
17 possible to do that, but you may not have -- because
18 the head is symmetric, you would have to guess at
19 where they started. And then based on that guess,
20 you'd then come up with the same population of nozzles
21 viewed, but you would come up with maybe not the right
22 nozzle numbers associated with which ones that had
23 been viewed on the tape. So it shouldn't change the
24 overall results, and it should be possible to do, but
25 I have not attempted this. That's my opinion.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 Q How easy would it be, do you think?

2 A I'm sorry?

3 Q How easy would it be to do it?

4 A It would be difficult, very difficult.

5 Q Without any -

6 A Without audible -

7 Q -- audio.

8 A It would be a challenge, because then
9 you're going strictly on visual cues. And, again, you
10 match your -- you would have to match your assumptions
11 with every view you're looking at, and confirm where
12 you're at. And I believe it should be possible, but,
13 again, I have not tried to do this.

14 MR. GHASEMIAN: Okay. We're going to go to
15 inspection video for the 2000 outage, and it's file
16 number XX-00. We will start at 530.

17 JUDGE TRIKOUROS: These are all as-found
18 inspections. Right?

19 THE WITNESS: The one he showed there, I
20 believe was supposed to be an as-found. There's a
21 series of inspection tapes. For instance, in 1996
22 there's two. One has been deemed a cleaning tape.
23 It's a short one. And then in '98 there are three
24 tapes that I viewed. And in 2000, three tapes. So,
25 generally, there's one inspection tape, and a couple

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealgross.com

1 that are generally cleaning-type tapes. They may have
2 been done, some of the cleaning tapes, post cleaning
3 efforts, such as you saw in one of the other video
4 tapes.

5 BY MR. GHASEMIAN:

6 Q The video tape that we saw, was that an
7 as-found video?

8 A That's my understanding, yes.

9 Q Okay.

10 JUDGE TRIKOUROS: You're probably showing
11 us only as-found, I assume.

12 THE WITNESS: The '96, it's my
13 understanding that was an as-found, yes.

14 MR. GHASEMIAN: Yes, Your Honor. It's as-
15 found only, the 2000 and '96. And the first video
16 that we showed was the cleaning of the 2000.

17 JUDGE TRIKOUROS: Right. Right. And the
18 2000 we're going to see, is that as-found, as well?

19 MR. GHASEMIAN: Yes.

20 BY MR. GHASEMIAN:

21 Q And could you explain, Mr. Holmberg, what
22 as-found inspection means?

23 A Basically, before you remove any
24 accumulated deposits, you would want to do an
25 inspection. And currently the methods if you wanted

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 to remove what you considered loose debris, or debris
2 that wasn't indicative of deposits, you would use non-
3 intrusive methods, either a vacuum, use a low pressure
4 air source to try to blow it away so that you could
5 see the interface, which is the area of interest. You
6 wouldn't want to try to mechanically remove it with
7 scrapers, or bars, or pressure wash the head.

8 Q So is as-found before cleaning or after
9 cleaning?

10 A It should be before the cleaning.

11 MR. GHASEMIAN: Now, going on to video
12 inspection 2000 RFO, and we're starting at 530.

13 (Video viewed.)

14 MR. GHASEMIAN: And for the record, Your
15 Honor, that's the voice over of the individual doing
16 the inspection. And you'll probably hear him along.

17 (Video viewed.)

18 BY MR. GHASEMIAN:

19 Q And what did he call out there?

20 A He was saying hole number 15, and by the
21 2000 time frame, they had used weep hole designations,
22 so that's what he's calling out.

23 (Video viewed.)

24 MR. GHASEMIAN: I'll stop at 658.

25 BY MR. GHASEMIAN:

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 Q Can you tell what we were looking at?

2 A It appears to be a solid deposit of boric
3 acid that completely fills the view of the camera, so
4 it's a substantial deposit of boric acid.

5 Q Can you see any popcorn-like deposits?

6 A No. The consistency, and this is a term
7 that they called out on the tape, is lava-like, and it
8 obscures any characterization of small discreet
9 popcorn-type deposits.

10 Q And could you tell the source of this
11 boron?

12 A No, I could not.

13 Q Can you tell us how close you are to a
14 penetration nozzle at this point?

15 A I have no idea how close they are to a
16 penetration nozzle, no. It's obscuring your field of
17 view. You don't know.

18 (Video viewed.)

19 BY MR. GHASEMIAN:

20 Q What did he say there?

21 A He's actually calling out penetration
22 numbers, vessel head penetration numbers, what he
23 believes he's looking at.

24 Q So is that the interface between the
25 particular nozzle that he's calling out and the vessel

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 head?

2 A Well, he's trying to find the interfaces.
3 He's not having a lot of success.

4 (Video viewed.)

5 BY MR. GHASEMIAN:

6 Q What did he say there?

7 A He said, "This area is majorly affected by
8 boric acid."

9 Q Could you tell what area that is?

10 A Yes. Again, I did a review of this video
11 tape, and based on my conclusion, I put down specific
12 time frames where I could tell where they were at on
13 the head, where they had actually managed to view
14 penetration. And based on my review, I came up with
15 a total of 23 interface shots. And of those, only
16 five were in a condition that you could claim were not
17 the source of the leakage.

18 (Video viewed.)

19 BY MR. GHASEMIAN:

20 Q What was he saying?

21 A Well, he says he'd like to see the surface
22 condition. I think he's referring to the surface
23 condition of the head, but I think the camera is
24 pointed in the wrong direction still.

25 Q We were at 1008.

1 A Upwards, so they're probably looking at
2 the gap where the nozzle goes through the insulation.

3 (Video viewed.)

4 BY MR. GHASEMIAN:

5 Q We're at 1049. What do you see?

6 A What I see is large masses of boric acid
7 deposits stretching all the way from the underside of
8 the insulation to the surface of the head, so they
9 basically are completed filling the cavity between the
10 insulation structure and the surface of the head.

11 Q And is there any way to tell what the
12 source of that boron is?

13 A No, I could not.

14 (Video viewed.)

15 BY MR. GHASEMIAN:

16 Q What did he say there?

17 A He said, "The bottom could not be seen
18 because it's covered with boric acid."

19 (Video viewed.)

20 BY MR. GHASEMIAN:

21 Q What did he mean by "lava-like
22 configuration"?

23 A I think he was trying to describe the
24 physical appearance of the deposits, and lava-like
25 appears to be a fairly accurate statement. Its color

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 is dark, and it's irregular, and it's an apt
2 description.

3 (Video viewed.)

4 BY MR. GHASEMIAN:

5 Q What did he say there, they were looking
6 for the uncovered piece of the head?

7 A Yes, they're looking for the bare surface
8 of the head.

9 Q Is another term "bare metal"? Is that the
10 same?

11 A Correct. Yes, bare metal inspection is
12 the term used associated with the type of examinations
13 that you perform looking for evidence of leakage.

14 JUDGE FARRAR: Before you go on, where was
15 that point?

16 MR. GHASEMIAN: That was about 1534.

17 JUDGE FARRAR: Okay. And are we going to
18 see the entire head?

19 MR. GHASEMIAN: No, Your Honor.

20 JUDGE FARRAR: Do we have the idea of what
21 -

22 MR. GHASEMIAN: A couple of more minutes,
23 I think we'll be done with this video. But, yes, it's
24 a much -- I don't want to say much longer, but there's
25 other portions of it that we're not viewing, but

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 there's just going to be another couple of minutes.

2 JUDGE FARRAR: Okay.

3 (Video viewed.)

4 BY MR. GHASEMIAN:

5 Q And what are we looking at there? We're
6 at 1555?

7 A The camera is actually panned toward an
8 adjacent weep hole, so you're looking from the inside
9 out in one of the places they would conduct the
10 inspection through. You can see a piece of the
11 insulation, which is on the outside. The insulation
12 or lead blanket for shielding is what's hanging down
13 there in that view. So that's what the camera view is
14 right now.

15 Q Is the camera view upside down, or is that
16 the way the -- or is it right-side-up?

17 A Yes. It's laying upside down in this
18 view. Yes.

19 Q But that is a mouse hole -

20 A Yes.

21 Q -- from inside.

22 A Correct.

23 (Video viewed.)

24 BY MR. GHASEMIAN:

25 Q What did he say there?

1 A He said that it obviously came from above,
2 and they'll have to, I think, evaluate the corrosion
3 from other places, because they don't have a good shot
4 at the bare metal head here in most of the frames.

5 Q Let's just hear that again.

6 A Go ahead.

7 (Video viewed.)

8 BY MR. GHASEMIAN:

9 Q What did he say there about corrosion?

10 A The remaining area did not have corrosion
11 on the metal.

12 Q Could you tell if he's talking about --
13 with the boron there, could you tell whether there's
14 corrosion or not, there's boron on the head?

15 A I can't tell where there's deposits what
16 the condition of the head is underneath that, no.

17 (Video viewed.)

18 BY MR. GHASEMIAN:

19 Q Did he say he's got his camera stuck?

20 A Yes. I heard, "The camera is stuck and a
21 piece of boron came upon us."

22 (Video viewed.)

23 MR. GHASEMIAN: That was at 1728.

24 (Video viewed.)

25 MR. GHASEMIAN: Okay. That's all we're

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 going to play with Mr. Holmberg today.

2 BY MR. GHASEMIAN:

3 Q Mr. Holmberg, let's go to Staff Exhibit
4 69. Actually, I misspoke, 13, Staff Exhibit 13. And
5 this is FENOC's serial letter number 2744, and it's
6 dated October 30, 2001. I will go to page 2. Have
7 you seen this document before?

8 A Yes, I have.

9 Q I'm going to highlight the sentence in the
10 second paragraph on page 2. Do you see that sentence
11 starting with "During"?

12 A Yes. You want me to read it?

13 Q Yes.

14 A "During the 12RFO inspection, 24 of the 69
15 nozzles were obscured by boric acid crystal deposits
16 that were clearly attributed to leaking motor tube
17 flanges from the center CRDMs."

18 Q And 12RFO refers to what year?

19 A The 2000 outage.

20 Q Okay. Is that consistent with your
21 review?

22 A No, it is not.

23 Q And for 2000, and based on your review,
24 what did you find?

25 A I found only 23 nozzles could be viewed on

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 the tape, and of those only five were in a condition
2 that would not be obscured by the boric acid.

3 Q So 64 of them were obscured.

4 A Correct. Well, there's 23 that were
5 viewable, so, yes, the presumption is the rest of them
6 were blocked based on the type of video we saw. But
7 that's all that was recorded on the tape.

8 Q Okay. So about 46 of them versus 24.

9 A Correct.

10 Q Mr. Geisen has stipulated that
11 significantly fewer nozzles were viewed. Do you agree
12 with that characterization?

13 A Yes. There was -- they did not, in my
14 review, view close to, you know, near all of the
15 penetration nozzles.

16 Q Let's go to Exhibit Number 69. Okay. Do
17 you recognize -- we're going to go back a page. Do
18 you recognize this document?

19 A Yes. This --

20 Q And what is it?

21 A This is the reactor vessel head map. This
22 is the -- what I used to conduct my reviews to orient
23 myself with respect to the audible enunciations and
24 the visual cues to make my report in terms of
25 determining what I was looking at on each of the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 videotapes.

2 Q Now, you created a tabular report, is that
3 correct?

4 A Yes.

5 Q And I'm going to just flip -- page through
6 on the monitors -- through the next diagrams. Did you
7 create these diagrams?

8 A Actually, they were created by another
9 engineer who was working with Office of Investigation.
10 And the diagrams that you have briefly flipped through
11 there contained the results of my report displayed
12 graphically.

13 Q And did you -- and these are all in
14 Exhibit -- Staff Exhibit Number 69 that I flipped
15 through, right? Well, that is, it was all in Staff
16 Exhibit 69. But did you -- did you check the diagrams
17 to see whether they match up with your tabular
18 findings?

19 A Yes, they do.

20 Q Okay. And this page that we were looking
21 at is the first page of the exhibit. And we have a
22 diagram similar to this that -- what is this again?

23 A Again, its title is "Reactor Vessel Head
24 Map," but it's a top-down view of the reactor vessel
25 head. The exterior starts with -- are basically here

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 the outer ring, here a bolt circle starts with one and
2 travels clockwise. That's the stud holes.

3 JUDGE FARRAR: We already know that, don't
4 we?

5 THE WITNESS: Yes.

6 JUDGE FARRAR: Okay.

7 BY MR. GHASEMIAN:

8 Q Okay. Let's go to the next page with the
9 heading 1996 at the top. There are some designations
10 at the lower left part of the page. What does "no
11 visual" mean?

12 A That means that the videotapes that were
13 recorded do not show a view of those penetration
14 nozzle locations for the area of interest, which is
15 the interface.

16 Q And could you tell, based on your review
17 of the videos, why those couldn't be viewed?

18 A And, again, as we explained earlier,
19 that's partly due to the limitations of the geometry
20 at that time, so that the technique that they used did
21 not necessarily -- it was not completely useful for
22 trying to get to the more center-located nozzle.

23 So you'll see areas near here are not
24 covered, and generally that is due to the -- again,
25 the geometrical limitations of taping the camera to

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 the end of a pole. By the time you get along the head
2 that far, based on where you have inserted the pole,
3 the camera is now basically pointing upwards and away
4 from the area of interest.

5 Q And when you sat here and you drew a
6 circle on the diagram, that was at the top of the
7 head?

8 A Yes. This would be the very top. That's
9 the center-most nozzle location. So you can see that,
10 you know, they don't have a view of any of these on --
11 yes, any of those next ring of nozzles around that
12 center view.

13 Q Okay. Now, what's the green circle, and
14 it says "acceptable visual," what does that mean?

15 A We had an example of that earlier. It's
16 when the -- on the videotape, when there was a view of
17 a nozzle where you had a shot of the interface area
18 for some sort of -- and I used more or less a
19 reasonableness standard. If I could view at least an
20 eighth of the circumference of a nozzle, and it was
21 free of debris or evidence of leakage, I put that in
22 the acceptable bin.

23 Now, I do want to caveat that if we had a
24 later view from another angle that showed a portion of
25 that interface block. It went into the unacceptable

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 bin. So the unacceptable were nozzles interface
2 locations that, although they were viewed on the
3 videotape, there was deposits that obscured that
4 interface.

5 Q Now, the next is the green circle or,
6 excuse me, the red circle, which says "unacceptable
7 visual." What does that mean?

8 A Yes. And that's -- I kind of briefly
9 covered that. That's if there was anything that
10 obscured my view of the interface location during my
11 review of the videotape for a given penetration
12 nozzle, obscured it to the point that you would not be
13 able to determine whether or not that was a leaking
14 nozzle. It went into the unacceptable visual bin.

15 Q So, for instance, let's say nozzle 54, it
16 has a green circle around it. That means you could
17 get a visual on that nozzle, and there was no
18 indication of the boron.

19 A Correct. And the only thing I want to
20 caveat is that even though there is a green circle all
21 the way around it that doesn't necessarily mean that
22 there was a camera view from 360 degrees around that.
23 My tabular table that I made up specifically stated at
24 each specific timeframe that I was recording a nozzle
25 viewed in that window, how much of the interface was

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 viewed.

2 So even though there's a full green
3 circle, it may be only a portion of the nozzle that
4 was viewed, but that nozzle in that view showed no
5 evidence of leakage, no evidence of deposits at the
6 interface. So --

7 JUDGE HAWKENS: What portion would you
8 have viewed to conclude that it was an acceptable
9 nozzle?

10 THE WITNESS: The minimum I considered you
11 could make any kind of reasonable argument about was
12 an eighth of the nozzle.

13 JUDGE HAWKENS: One-eighth?

14 THE WITNESS: Yes.

15 BY MR. GHASEMIAN:

16 Q How about the nozzle next to it,
17 number 66. That has a red circle around it. Does
18 that mean that you couldn't make a -- does that mean
19 there was boron around it and you couldn't make a
20 determination?

21 A Yes. There is some deposit at the
22 interface that masked it, such that you could not
23 conclude that that was not a leaking nozzle. So it
24 was put in the unacceptable bin.

25 Q Okay. Now, the next diagram in that

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 Exhibit 69 is the 1998 diagram. And could you -- is
2 it similar to the '96 as far as how you approached it
3 and what the -- how you evaluated each nozzle?

4 A Yes. I did each review in an identical
5 fashion.

6 Q Okay. Now, in this diagram, there is a
7 yellow area as well. What is -- and it says that it's
8 designated by FENOC as affected area from leaking
9 flanges.

10 A Yes. In the portion of the submittals
11 that they made in response to Bulletin 2000-101, they
12 produced a head map like this and designated areas of
13 the head that had been affected by leaking flanges.
14 And that has been mapped out on the same diagram here
15 that shows my inspection results.

16 Q Okay. And I'm going to -- the next
17 diagram is -- it's another 1998. Now, in the 2000,
18 the same approach as you did for '96 and '98, correct?

19 A Yes, that's correct.

20 Q And the yellow area is the area that was
21 designated by FENOC as affected by the leaking
22 flanges, correct?

23 A Yes. It represents that, yes.

24 Q Now, do you know which flanges were
25 represented to be leaking?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 A I did not do a review to try to determine
2 which flanges were leaking. This -- I confirmed that
3 the -- this was the area stated in the FENOC response
4 as being affected by the leaking flanges.

5 Q Okay. Let's say if they represented that
6 number 3, nozzle number 3 in the yellow area was
7 leaking, what is the likelihood of boron from that
8 leaking flange ending up around nozzle number 69?

9 A It would be relatively unlikely, given
10 that, as I mentioned before, the mechanisms for
11 getting down to the head would either be running down
12 the stalk of the nozzle, so that it would hit the head
13 directly below the leaking nozzle, or it's possible it
14 would -- if it would spray now, it could strike the
15 adjacent head penetration nozzles and run down those.

16 But to travel, you know, across the --
17 remember, we're talking the total head diameter to the
18 inside bolt circle is about 13 feet, so you've got
19 several feet it would have to cross to reach a nozzle
20 on the other side of the head such as this one here
21 shown with some sort of masking deposit on the far
22 side.

23 MR. GHASEMIAN: If I may have a moment,
24 Your Honor.

25 JUDGE FARRAR: Certainly.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 (Pause.)

2 JUDGE TRIKOUROS: Mr. Holmberg, are you
3 aware of which nozzles were identified were repaired
4 coming out of the 2000 -- not nozzles, I meant
5 flanges, were repaired coming out of the 2000 outage?

6 THE WITNESS: Actually, no. There was
7 another member of our team that did the detailed
8 repair history. So the -- you know, there was -- we
9 each kind of had our own little areas that we covered
10 on the AIT, and so another gentleman did the reviews
11 of that.

12 So I didn't try to basically study that or
13 commit that to any kind of memory on which flanges
14 leaked during which outages, because the purpose of my
15 reviews was not to try to correlate or even really to
16 find the source of the boric acid. The purpose of my
17 reviews was simply to document what I saw on the
18 videotapes, and not try to correlate it with a -- some
19 other, you know, guess where it was coming from.

20 JUDGE HAWKENS: Mr. Holmberg, how is it
21 that some of the areas would have been unacceptable in
22 '98 but acceptable in 2000? Were they cleaned --
23 attributed to cleaning?

24 THE WITNESS: They -- yes, they did
25 conduct cleaning in '98. In fact, there were two

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 cleaning tapes, I believe, from '98. So the short
2 answer is, yes, they likely cleaned some of the
3 locations between '98 and 2000.

4 JUDGE HAWKENS: And why in the 2000
5 picture, the top third, there was no visual, why is
6 that?

7 THE WITNESS: No visual just meant that it
8 wasn't recorded on any of the videotapes I reviewed.
9 And so there is -- you know, why they didn't record it
10 mostly for 2000, simply because there was so much
11 boric acid the deposits, you know, obscured -- or you
12 saw some of their attempts to try to get in the
13 locations. They just ran immediately into boric acid,
14 walls of boric acid. So there was no video recorded
15 in some areas, because they couldn't get the camera in
16 those areas.

17 BY MR. GHASEMIAN:

18 Q If I may ask a couple of questions about
19 the 1996 inspection, based on your review of the
20 videos. How would you describe the scope of the 1996
21 inspection?

22 A Well, it was not complete, as I mentioned
23 before. Based on my reviews, a total of 51 nozzle
24 head penetrations at the interface location could be
25 viewed on the tape. So it certainly did not cover 100

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 percent of the nozzles, which was the expectation from
2 Bulletin 2000-101.

3 Q And that was -- that's more than was
4 viewable in 2000 and '98, is that fair to say?

5 A You said that was -- '96 was the most
6 complete inspection in terms of the extent of coverage
7 of any of the three examination periods.

8 Q But it wasn't 100 percent.

9 A No, it was not.

10 Q Did you review the 1996 cleaning tape?

11 A Yes, I did.

12 Q And how long of a tape was it?

13 A Generally, those -- the '96 cleaning tape
14 was just a few minutes in length. You've got my
15 report there. I think -- I don't even think we
16 credited anything from it. It was a short duration
17 tape.

18 Q And because it was so short, is that why
19 you didn't credit?

20 A In general, the cleaning tapes were of
21 limited value, because they lacked orientation. They
22 may not have even told you where they put the camera
23 through. Their intent was simply to use the camera to
24 aid their cleaning efforts.

25 Q And how much of the head could you see,

1 could you tell?

2 A Well, again, if you've got my report
3 handy, the tabular report, I document how much I got
4 from each of the cleaning tapes I reviewed from each
5 of the periods.

6 Q Based on what, your memory from '96 right
7 now?

8 A I don't recall any additional credit from
9 the cleaning tape that was conducted.

10 Q Okay. Okay. Let's go to Staff Exhibit
11 Number 52. Do you recognize this document?

12 A Yes, I do.

13 Q And what is it?

14 A I participated in a phone conference call,
15 as it states there, between members of Nuclear Reactor
16 Regulation, the Materials Group, Bill Bateman is the
17 probably ranking member there. And then, from
18 Region III, myself, John Jacobson, and that would have
19 probably been Laura Collins.

20 And then, with the licensee, there is an
21 attached list. And the purpose of the call was to
22 discuss the results of what Davis-Besse was going to
23 be able to provide in response to Bulletin 2000-101
24 with respect to their inspections.

25 Q And this teleconference occurred on

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 October 3, 2001?

2 A Yes, it did.

3 Q And why were you involved?

4 A It affected our inspection efforts,
5 because the bulletin required that the effective
6 examinations be completed by a December 31st date, and
7 that if you couldn't do that then there was concern
8 with the staff. And, in fact, you had to justify it
9 against our regulations of why you should continue to
10 operate.

11 And so if they were held to that deadline,
12 then they would have had to shut down again by the end
13 of the year, which would have been an unplanned outage
14 from their standpoint, and it would affect our
15 inspection resources, because we need to be there
16 during the outages to conduct a number of our
17 inspections.

18 So I was trying to get an early heads up
19 as to whether they were headed toward a shutdown, and
20 so it was a substantial meeting from that standpoint,
21 and that's how it affected the regional folks that
22 were on the call.

23 Q And are these a summary of your notes that
24 is --

25 A Yes. Those are the summary I took from

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 the conference call.

2 Q And let's go to the first paragraph, first
3 sentence. I'm highlighting it. Could you read it?

4 A "NRR questioned the scope of the April
5 2000 head examinations."

6 Q And could you explain what that meant?

7 A They were trying to ascertain exactly what
8 was examined in terms of the number of vessel head
9 penetrations, and so forth, because, again, as our
10 bulletin was -- what it -- the bulletin was calling
11 out was 100 percent inspection, all of the vessel head
12 penetrations had been inspected.

13 Q And by "NRR," who is NRR?

14 A NRR was the Office of Nuclear Reactor
15 Regulation. The Materials Group was the lead for
16 this.

17 Q And moving on to the next sentence, the
18 second sentence in the first paragraph, could you read
19 that?

20 A "The licensee stated that 100 percent of
21 the head was inspected," which included the CRD
22 housing-to-head interfaces.

23 Q When it said 100 percent of the head was
24 inspected, what did you understand that to mean?

25 A That they were able to examine all of the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 head.

2 Q And what is the CRD housing?

3 A Yes, my terminology there was a little
4 less than precise. I was using the CRD housing --
5 what, I mean, we have been referring to as vessel head
6 penetration nozzle locations. The housings are
7 actually a little further up the stock, so it would
8 have been better to call them vessel head penetration
9 nozzles. But it was summarized as CRD housing-to-head
10 interface, but it's the region that we're talking
11 about here.

12 Q Where the bottom of the nozzle hits the
13 vessel head.

14 A Correct.

15 Q In the next sentence, it goes on to say,
16 "However" -- you can read that.

17 A "However, for the five to six nozzles near
18 the center of the head, boric acid from CRD flange
19 leakage precluded definitive conclusions that the CRD
20 nozzle welds were not leaking."

21 Q And what did you understand that to mean?

22 A That there was deposits on the head, and
23 that those deposits were from flange leakage. And
24 that because of those deposits they were saying they
25 could not determine that they didn't have leaking

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 welds, J-groove welds.

2 Q And by "licensee," do you recall who was
3 making these statements?

4 A Off hand, I can't remember who was leading
5 these discussions. Again, this is some time ago. I
6 didn't try to do an exact, you know, dictation of
7 everybody speaking. I just summarized what I had
8 heard on the call from whoever was leading the
9 discussion.

10 Q Okay. Moving on to the last paragraph,
11 the first sentence, it says, "NRR informed the
12 licensee that they don't intend to let the issue drag
13 out." Can you tell us what that's about?

14 A Yes. The -- as I mentioned before, the
15 reason we were on the call was the concern that the
16 licensee may have to shut down to do an additional
17 inspection. And so when they said that they don't
18 intend to let the issue drag out, the inference was
19 that, you know, we are holding to the deadline there,
20 and that you need to come up with an argument that we
21 can accept that -- or you'll have to comply and do the
22 inspections that the bulletin was requiring.

23 MR. GHASEMIAN: Your Honors, the Staff
24 doesn't have any more questions at this time.

25 JUDGE FARRAR: No more questions?

1 MR. GHASEMIAN: Yes.

2 JUDGE FARRAR: Okay.

3 JUDGE HAWKENS: Mr. Holmberg, I might have
4 misunderstood. I thought that the inspection process
5 due to the geometric limitation would prevent in any
6 event 100 percent inspection of the penetrations.

7 THE WITNESS: Yes, that's my conclusions.

8 JUDGE HAWKENS: So how could it ever be
9 correct that the -- a licensee's statement that 100
10 percent of the head was inspected, which included
11 presumably 100 percent of the vessel head
12 penetrations?

13 THE WITNESS: Yes, I -- based on the
14 videotapes I have reviewed, that is not -- that is not
15 the examinations they conducted or that they based
16 their conclusions on. So I can't understand how that
17 could be an accurate statement.

18 JUDGE HAWKENS: Thank you.

19 JUDGE TRIKOUROS: That exhibit also
20 indicated that the copies of the videotapes were
21 requested.

22 THE WITNESS: Yes.

23 JUDGE TRIKOUROS: Were they provided on
24 the -- on or about the 25th?

25 THE WITNESS: I presume so. Again, I'm in

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 the region, and they are sending the material to the
2 staff at NRR. But who received it and reviewed it or
3 saw it at NRR, I don't know the answer to that.

4 JUDGE TRIKOUROS: But there was no
5 apparent hesitation on the part of the company to
6 provide these videotapes?

7 THE WITNESS: They didn't express any
8 hesitation on this call or I would have annotated it.
9 But as -- what happened at that point on, I don't --
10 I can't answer that.

11 JUDGE FARRAR: Mr. Wise, do you want to go
12 ahead, or would you rather --

13 MR. WISE: Sure.

14 JUDGE FARRAR: -- break?

15 MR. WISE: No, I'm happy to get started.

16 JUDGE FARRAR: Lisa, how are you doing?

17 Off the record.

18 (Whereupon, at 2:43 p.m., the proceedings
19 in the foregoing matter went off the
20 record briefly.)

21 JUDGE FARRAR: All right. Anybody need a
22 break?

23 (No response.)

24 Well, then, let's keep going.

25 MR. WISE: Okay. Thank you, Your Honor.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

CROSS EXAMINATION

1
2 BY MR. WISE:

3 Q Good afternoon, Mr. Holmberg.

4 A Good afternoon.

5 Q Let me start with you where you left off
6 with the Staff, and that is the October 3rd phone
7 call.

8 MR. GHASEMIAN: Excuse me. If we may take
9 a moment, we need to rotate the video or the screen,
10 so Mr. Wise can -- all right.

11 BY MR. WISE:

12 Q And, Mr. Holmberg, for the record this is
13 Staff 52, which are your notes from that call.

14 A Okay.

15 Q The second sentence and the third sentence
16 I take it you understood as being connected in this
17 conversation, correct?

18 A Yes.

19 Q When the statement was made about the 2000
20 inspection, given the conversation about the five or
21 six nozzles near the center of the head, you did not
22 come out of that hall believing that Davis-Besse had
23 looked at every nozzle in the 2000 inspection,
24 correct?

25 A That's correct.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 Q Now, Mr. Ghasemian also asked you a
2 question about a phrase "whole head visual
3 inspection." And that was also, you said, a term for
4 you that meant they had seen the entire thing?

5 A If somebody had told me they conducted a
6 whole head inspection, and it was in context with
7 Bulletin 2000-101, I would have assumed that meant
8 that they performed an inspection that included all of
9 the vessel head penetration nozzles, yes.

10 Q You would agree with me also, though, that
11 that is a term that depends on the surrounding
12 language as well, correct?

13 A Oh, absolutely, the context.

14 Q I'm going to show you a page of -- I
15 believe it's Staff Number 13. Strike that. Staff 11,
16 which is serial letter 2735. Specifically, I'm going
17 to guide your attention to what is page 2 of 5 of
18 Attachment 1 of that document and ask you to look at
19 the third line of the paragraph that the mouse is on.
20 Do you see that?

21 A Yes.

22 Q Now, in this paragraph, it is reported
23 that the inspections in 10, 11, and 12RFO, consisted
24 of a whole head visual inspection, correct?

25 A That's what it says, yes.

1 Q And later in that paragraph there is a
2 discussion of which nozzles could be seen. For
3 example, it says, "In 10RFO, 65 of 69 were viewed.
4 During 11RFO, 50 of 69 were viewed. And, in 12RFO, 45
5 of 69 were viewed."

6 A Yes, I see those.

7 Q Given the language in that paragraph, I
8 take it that, notwithstanding the use of the phrase
9 "whole head visual inspection," when you read that you
10 did not believe them to be saying that they had seen
11 the entire head during those inspections, correct?

12 A No. Those inspections they articulated a
13 specific number of nozzles that were viewed.

14 Q Now, the videos that we have watched this
15 morning it's fair to say you are familiar with,
16 correct?

17 A Yes.

18 Q When you did the reviews that you have
19 described today, how long did you spend reviewing
20 videotapes from Davis-Besse?

21 A I went back and checked on the time
22 charged to that at the time that I did it, and it was
23 -- I believe it was like 58 hours.

24 Q Okay. Fifty-eight hours of just reviewing
25 the videos.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 A Reviewing the videotapes.

2 Q And you brought also a fair amount of
3 experience to that endeavor, correct?

4 A Yes, I have experience with watching
5 videotapes of head examinations. So that is true,
6 yes.

7 Q You have been with the NRC since 1994?

8 A Yes.

9 Q You have been -- you are a resident -- a
10 reactor inspector?

11 A Correct.

12 Q Who has been passed through the inspector
13 qualification program?

14 A Yes.

15 Q That program involved, is it fair to say,
16 over 2000 hours of training and experience?

17 A Yes, it does.

18 Q An oral board exam that you passed?

19 A Yes.

20 Q You've done exams at, you said, more than
21 a dozen --

22 A Correct.

23 Q -- plants?

24 A Yes.

25 Q In those more than a dozen, those are

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 actually inspections of the head itself, correct?

2 A Yes.

3 Q So this was not new territory for you.

4 A No, it is not.

5 Q You described to Mr. Ghasemian the eddy
6 current test and the ultrasound test and the other
7 non-destructive examinations.

8 A Correct.

9 Q Those are procedures that have been
10 developed largely in the last five years, correct?

11 A In reference to inspecting this particular
12 area, yes, the specialized techniques for the non-
13 visual in particular have been refined and honed and
14 specifically qualified, if you will, to look for flaws
15 or cracks in the area of interest, which is the J-
16 groove weld.

17 Q Those techniques were not standard in
18 2000.

19 A No.

20 Q Nor in 1998.

21 A Correct.

22 Q Nor in 1996.

23 A Correct.

24 Q You said that at that time Davis-Besse did
25 visual inspections.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 A Right.

2 Q That was standard in the industry.

3 A Visual inspections, and then if you
4 thought evidence of leakage you did additional
5 examinations. For instance, at Oconee, after they
6 experienced leakage, they went down and they did dye
7 penetrant exams. So even though, you know, they may
8 not have ultrasound developed when you go back far
9 enough that would be effective in this area, they had
10 other surface techniques that they could go to try to
11 determine or confirm the potential source of leakage.

12 Q But the initial visual exam was the
13 standard --

14 A Was the primary tool, that is correct.

15 Q You weren't -- you didn't mean to suggest
16 that Davis-Besse was somehow behind the times with
17 their practices at least in '98 and 2000.

18 A No.

19 Q Okay. And the videotapes that you
20 reviewed, is it true that that was not required of a
21 plant when it was doing an inspection, to actually
22 tape the inspection?

23 A To my knowledge, no, as some boric acid
24 programs may require something else. That's -- you
25 know, individual plants may do that to facilitate

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 their examination, but no, it's not required by the
2 NRC to videotape those exams during the timeframe they
3 did them, no.

4 Q And the videotapes that you reviewed were
5 not themselves made in order to conduct an interface
6 inspection.

7 A No. My understanding is they were to
8 facilitate their boric acid program type inspections.

9 Q Is it fair to say the quality of the tapes
10 was poor?

11 A Compared to today's standards, yes.

12 Q And that the '96 tape was the best of the
13 bunch?

14 A Correct. It was the most systematic
15 inspection and had the best coverage, yes.

16 Q You have described -- you showed the maps
17 and the calls that you made when you determined that
18 a nozzle would not be obscured.

19 A Correct.

20 Q That is a standard that you developed for
21 the purposes of the present litigation, correct?

22 A Yes, I developed that to ascertain what I
23 would conclude based on that videotape with how many
24 nozzle interfaces were there, and whether that would
25 be a nozzle interface that you could say that nozzle

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 wasn't leaking. So that was my understood purpose
2 behind doing the review.

3 Q And who asked you to do the review?

4 A Our Office of Investigation, who at that
5 point was conducting that in concert with the
6 Department of Justice. So ultimately it became part
7 of the Department of Justice's -- the report went to
8 them.

9 Q Were you given guidance on how you should
10 establish a standard for your review?

11 A No.

12 Q And you, I believe, on direct described it
13 as more or less a reasonableness standard, correct?

14 A The reasonableness standard was -- went to
15 how much of an interface area somebody -- or I felt
16 somebody could make a case that, "See, I can see this
17 much of the nozzle, so -- and I know, therefore, it's
18 not leaking." As far as the criteria for whether it
19 was leaking or not, that was an established criteria
20 of evidence of leakage at the interface, which has,
21 you know, been described as boron or other such
22 deposits.

23 Q And that was established in an EPRI
24 document?

25 A The EPRI document came out to give the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 industry a standardized way of assessing that, yes.
2 I believe, though, the -- as far as deposits and
3 stuff, they have been described before that. But that
4 was the first standardized way or consolidated way of
5 getting everybody on the same page, yes.

6 Q And that consolidated way was published,
7 I believe, in 2003, is that correct?

8 A Actually, it came out -- according to the
9 document, it states that the first revision came out
10 I thought in 2002. I haven't seen those earlier
11 revisions, so I don't know what -- the document he's
12 talking about is an industry document which provides
13 guidance to the examiners for doing visual exams.

14 And it has grown more comprehensive over
15 time, because it is a compendium -- pictures if you
16 will -- of all nozzle penetration leaks that they
17 photographed and recorded, and that they have gone
18 back and then confirmed that this was a leaking
19 nozzle. So they said, "Here is a boric acid deposit,
20 and here is evidence of leakage."

21 So when we're having this discussion,
22 that's the document he is talking about.

23 Q Whether it was 2003 or 2002, you would
24 agree with me it was not in place in 2000.

25 A Correct.

1 Q Okay. Now, you also know, I take it, that
2 the standard that you employed was different than what
3 Davis-Besse disclosed in terms of how it was making
4 its determinations that it presented to the NRC,
5 correct?

6 A That's what I have come to understand,
7 that they had a different standard when they did the
8 review, yes.

9 Q You reviewed, I take it, 2744?

10 A Yes.

11 Q Both in the fall of 2001 and in your work
12 on the augmented inspection team?

13 A Let me think about the augmented
14 inspection team. It was likely reviewed by the team.
15 I'm trying to remember if I explicitly reviewed it
16 myself during the team. I don't recall if I reviewed
17 it that early on or not.

18 Q Okay. But you reviewed it more closely
19 since.

20 A I have, certainly, yes.

21 Q I'm going to show you a page from Staff's
22 Exhibit Number 13. Do you recognize, as I scroll
23 through these, what this document is?

24 A I believe those are pictures that are out
25 of your -- that response to the bulletin. Serial

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 Number 2744 I think is what those were taken out of --
2 that letter.

3 Q And do you recall that 2744 included still
4 photographs from 1996, '98, and 2000?

5 A Correct.

6 Q Do you recall that there were captions in
7 some of -- with some of the pictures?

8 A Yes, there were.

9 Q And that the captions in some
10 circumstances described how FENOC was making its calls
11 on nozzles?

12 A Yes. There were languages -- language to
13 the effect that described what they felt that that
14 picture represented, yes. And you could infer that
15 that would form part of their criteria, yes.

16 Q And at some point I ought to stop stalling
17 and actually find the language I'm looking for.

18 (Laughter.)

19 Okay. I'm showing you now what is marked
20 on the top of the exhibit at least as page 22 of 55.
21 And I want to call your attention specifically to the
22 language in the caption. Do you recognize that as the
23 type of caption that you and I were just discussing?

24 A Yes.

25 Q In essence, what Davis-Besse said in 2744

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 was that it would call a nozzle acceptable if it had
2 a clean downhill side of a nozzle, even if it had
3 boron accumulated on the uphill side that it believed
4 had rolled down from another source, correct?

5 A Maybe it would be better if I just read
6 what it says. But it -- you know, but I would agree
7 that's probably a -- the interpretation that you could
8 get from this. But --

9 Q Okay. And that is different from what you
10 employed in your examination, correct?

11 A Yes, it is.

12 Q Now, did you discuss with the folks that
13 had asked you to do this review what Davis-Besse had
14 said their methodology was?

15 A No. Actually, when I conducted my review,
16 what they were doing was asking me to do a review
17 based on my knowledge, background, and experience, and
18 for the purposes that I have already ascertained, that
19 -- how many nozzle interface areas could I see based
20 on those videotapes, and what was my conclusion about
21 those interfaces..

22 Q So you never did a review where you said,
23 okay, if I take the methodology that they said they
24 were using, how accurate was the -- were the results
25 they got to?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealgross.com

1 A Correct. I did not do that.

2 Q Okay.

3 A I want to add one thing to that.

4 Q Sure.

5 A The total number of nozzles viewed,
6 though, the interface area, would not change no matter
7 what methodology you applied to call it acceptable or
8 unacceptable.

9 Q If the camera caught over the horizon the
10 downhill side of a nozzle, and there was no way for
11 the camera to get around to the other side of that
12 nozzle, would you call that nozzle viewed?
13 Unacceptable? How would you characterize that?

14 A Again, if there was a view that showed any
15 portion of the nozzle, and it was an eighth and it,
16 you know, was sufficient to say, "Yes, I could see
17 something in that portion of the nozzle," it went on
18 my list as viewed.

19 Q Okay. So you had to see an eighth in
20 order to call it viewed?

21 A Yes. That was my guess. You know, you
22 don't have an exact ruler, but yes.

23 Q But if there were any boron around any
24 part of that nozzle, even if you could see all of it,
25 you would call that not acceptable.

1 A If the boron was at the interface area and
2 could obscure the detection of leakage, yes, any place
3 around it.

4 MR. WISE: Let me ask you, Your Honor, if
5 I can go into the weld.

6 JUDGE FARRAR: Certainly.

7 BY MR. WISE:

8 Q Talk a little bit about flange leakage.
9 Taking a look at the larger model of the nozzle --
10 actually, can I have Mr. Holmberg step down, just so
11 he can point this stuff out?

12 JUDGE FARRAR: Certainly. Yes, if you
13 would, Mr. Holmberg.

14 BY MR. WISE:

15 Q And if you could point out for the Board,
16 which part of the nozzle here is the flange?

17 A It's this part right here.

18 Q Okay. And how does this model, this
19 flange here, correspond to what is on the smaller
20 model that is the cross-section?

21 A It's the terminal end here. The terminal
22 end here of the vessel head penetration nozzle is the
23 bottom half of that flange.

24 Q When a flange leaks, where does the leak
25 emerge from?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 A Okay. It has got to get through a
2 gasketed area, and then it can come down through the
3 bolt holes, or possibly, if it's bad enough, it may
4 come directly outside the -- through the outside base
5 of a flange.

6 Q Okay.

7 JUDGE FARRAR: For the record, Mr.
8 Holmberg, the gasketed area is the darker colored --

9 THE WITNESS: Well, not exactly. It's a
10 split-nut kind of configuration you're trying to mock-
11 up. So the gasketed area would actually just be these
12 little grooves.

13 JUDGE FARRAR: Okay.

14 BY MR. WISE:

15 Q And when Mr. Ghasemian was asking you
16 questions, you I believe at one point indicated with
17 your red -- by marking it in red on the screen that
18 the flange leakage would run down to the nozzle that
19 way and onto the head?

20 A That would be one path, yes.

21 Q It is also possible that if the flange had
22 a steam cut it would spray sideways, correct?

23 A That's correct.

24 Q And the spray could hit other nozzles and
25 travel down other nozzles.

1 A That's correct.

2 Q And if the steam cut was sufficiently
3 significant, you could get spray more than on just the
4 nozzle directly adjacent to a particular flange.

5 A That is true.

6 Q When we were watching the 2000 video,
7 there were a couple of points. You understand that
8 the voice that we heard on the 2000 video was Andrew
9 Siemaszko, correct?

10 A Yes.

11 Q And he is the Systems Engineer who had
12 done the inspection?

13 A Yes.

14 Q You also understand that Mr. Siemaszko was
15 the Systems Engineer in charge of reviewing the
16 videotapes for the table that you spoke about in 2735?

17 A If you say so. Again, I was not party to
18 who can -- who performed what portion of those
19 submittals that were provided to the NRC.

20 Q That was not something you learned as part
21 of the AIT?

22 A No. We were -- again, we were focused on
23 detailing the timeline, so who provided what
24 information in the submittals was not the focus of our
25 AIT.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 Q Okay. Let me pull up the head map.
2 Mr. Holmberg, this is Staff 7. This is the head map
3 that I believe you referred to before, correct?

4 A Yes. Yes.

5 Q And this was the head map that you used as
6 you did your review of the videotapes.

7 A That's correct.

8 Q This is a type of map that I take it you
9 are familiar with, given your work as a head
10 inspector?

11 A It is -- yes, I'm familiar with plan
12 views, topographical maps, that are made for head
13 inspections, yes.

14 Q And the use of this map in your review was
15 that it allowed you to make a determination, if you
16 knew the weep hole number, of what nozzle you were
17 looking at, correct?

18 A Right. Weep hole or stud hole, either
19 one, some sort of audible cue as to where you were on
20 the head.

21 Q I'm going to ask a couple of questions
22 that may be slightly repetitive of the direct, but I
23 just want to make sure we understand the question
24 about what you could tell if there were no narration
25 of the weep holes.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 When we look at the video, there were
2 times where the camera went in, and then you could see
3 a bar above.

4 A Correct.

5 Q Can you point out on the screen what those
6 bars were?

7 A Yes. That's the support bars for the
8 insulation. C-1, you know, the horizontal lines going
9 across, and then they intersect with a ring at the
10 edge there. And that forms the support structure for
11 the horizontal insulation that sits on top of that.

12 Q So if the camera were to go into a weep
13 hole that was unidentified --

14 A Right.

15 Q -- but you were able to see immediately as
16 the camera entered a nozzle and a support bar running
17 directly behind a row of five nozzles --

18 A Okay.

19 Q -- looking at the head map, you could tell
20 either that you were in the weep hole that was
21 approximately at 5:00 or at 11:00, but you wouldn't be
22 able to tell necessarily which weep hole you were in,
23 correct?

24 A Correct.

25 Q And assuming that the camera then went in

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 and out and in and out and progressed around the head,
2 and assume for the purpose of this hypothetical that
3 you didn't have the type of inability to get to the
4 top of the head with a camera on a stick, you would --
5 you might be able to say, "I have seen every nozzle,
6 even though I don't know which nozzles I was looking
7 at at any particular time," correct?

8 A Okay. Let me just make sure I understand
9 the question. So, hypothetically, no audible cues.

10 Q Right.

11 A You have oriented yourself based on the
12 landmark, as you discussed. And then, you looked at
13 the head tape and were able to ascertain they went in
14 each weep hole.

15 Q Right.

16 A And that is the method I described
17 earlier, that, yes, that would -- might be possible.
18 I did not try to do that.

19 Q Okay. It would be difficult to do.

20 A Yes.

21 Q But probably not impossible, correct?

22 A Yes. It looks like it would be possible.

23 Q Okay. Let's talk about interference fit.
24 You described a bit on direct that if you had an
25 interference fit in a nozzle it would prevent leakage

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 even if there were a crack below the nozzle, correct?

2 A That -- yes, that was the concern that was
3 articulated in Bulletin 2000-101, and, hence, the need
4 for the term "qualified inspection."

5 Q Because the fit was so tight that any
6 leakage wouldn't get up through and then show itself
7 on the top of the head.

8 A That was the concern, yes.

9 Q Assume, hypothetically, that you had an
10 interference fit at a nozzle, and you also found a
11 deposit at that nozzle. What would you conclude based
12 upon those two factors?

13 A If you had an interference fit, and you
14 found deposits to that nozzle.

15 Q Right.

16 A I guess you'd have to believe one of two
17 things -- that the analysis that said the interference
18 fit was going to persist at operating pressure was
19 wrong, or that the deposit did not come from a leaking
20 nozzle.

21 Q But instead came from some other source.

22 A Right.

23 Q Such as flange leakage.

24 A Yes.

25 Q You testified I believe that there was a

1 clear prevailing assumption at Davis-Besse during the
2 time period that we are talking about in the
3 inspections that they had flange leak problems,
4 correct?

5 A Yes. In the videotapes, they articulate
6 that they believe -- they state several times that
7 they believe that's, you know, from flange leakage.

8 Q So when we're at the point of the video
9 that Mr. Ghasemian had you listen to from 2000 where
10 Mr. Siemaszko talks about this is a major area
11 affected by boric acid, it's an area underneath the
12 major leak.

13 And, Your Honor, just for the record, that
14 was at A-10.

15 That's what you understand that to be a
16 reference to, a major leak being the flange leak?

17 A That was my understanding of what he was
18 saying, yes.

19 Q How long have you been in Region III?

20 A Since 1994.

21 Q And what is the role of the resident
22 inspector?

23 A The resident inspector basically is the
24 eyes and ears for the agency. They are the people
25 that are there on a day-to-day basis at the site.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 They keep tabs on the plant as it's operating, do
2 routine baseline inspections. In other words, they do
3 focused inspections in different areas. But they also
4 provide a daily status back to the region on what is
5 going on at the site, and they are key individuals for
6 assessing site performance.

7 Q The daily status meetings that you
8 referred to before?

9 A Yes.

10 Q Are the resident inspectors present at
11 those meetings?

12 A Yes. Every morning, Monday through Friday
13 anyway, they provide a status update to their branch
14 chief, and the branch chief then provides a status to
15 our senior managers in the region at an 8:15 meeting.

16 Q Who is Douglas Simpkins?

17 A He was a resident inspector at Davis-
18 Besse.

19 Q Was he the resident inspector in 2000?

20 A I believe that's correct.

21 Q Are you familiar with photographs that
22 were taken in 2000 that are I believe often referred
23 to as the red photos?

24 A Yes, I am.

25 Q And those photographs showed what?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 A The red photo shows a picture of the
2 Davis-Besse head from the outside where you can see
3 red rust-colored stains running out of the weep holes
4 and boric acid running out of the weep holes.

5 Q That photograph -- those photographs, the
6 red photo in that series, you know was in the
7 possession of Mr. Simpkins in 2000.

8 A Actually, I don't know. I would say I --
9 no, I don't know.

10 Q That's not an issue that was ever
11 discussed?

12 A No. The red photo became more prominent
13 after the AIT, because it was one of the things that
14 was figured, you know, substantially during
15 presentations, and so forth, showing the photograph.
16 But as to who saw it in 2000, no, I -- that was not
17 discussed with me.

18 Q Okay. Just so we're clear, I'm not asking
19 you if you knew that he had it in 2000. What I'm
20 asking is: you have come to know subsequently that
21 Mr. Simpkins received that photograph in 2000.

22 A I don't -- actually, I don't know. I've
23 heard resident inspectors saw it. I don't know if
24 that was Simpkins or who saw it. But that's what I
25 have been told, that somebody says that the resident

1 inspector saw a photograph. But I -- that's what I've
2 heard. Again, it's second, third-hand, not
3 specifically who saw what. No, I don't know.

4 MR. WISE: I'm sorry, Your Honor, if I
5 could have one minute.

6 JUDGE FARRAR: Certainly.

7 MR. WISE: Thank you.

8 JUDGE FARRAR: Take as long as you need.

9 (Pause.)

10 BY MR. WISE:

11 Q Mr. Holmberg, let me just ask you a couple
12 more questions. The work you do now when you do a
13 head inspection --

14 A Yes.

15 Q -- you don't actually go do what we saw
16 Mr. Siemaszko doing on the tape, correct?

17 A No, I don't position a camera up
18 underneath the service structure.

19 Q Okay. You said you've done over a dozen
20 inspections?

21 A Right.

22 Q And what you do when you perform these
23 inspections is generally you are checking on the
24 methodology of the onsite inspectors, correct?

25 A Correct.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 Q You want to make sure that the person has
2 the proper training?

3 A Yes.

4 Q That they are using the right methodology?

5 A Yes.

6 Q Is it fair to say that you sample about 10
7 percent of the nozzles at a plant you're reviewing?

8 A Yes. Specifically, the temporary
9 instruction, the first one was TI-145, is the one that
10 focuses on following up on the bulletin and checking
11 on licensees to make sure they were performing
12 examinations that met the requirements of the
13 bulletin. It required a sample size of roughly 10
14 percent, requested that we do an independent review.

15 And for us you could either do direct, you
16 know, visual, standing next to them, watching them do
17 it. You could be at the monitor where they're
18 recording it, because typically by that time everybody
19 was using certainly video recording to do those
20 inspections. So you were expected to do an
21 independent review rather than just read some report
22 after they have done it. So you are -- that was the
23 expectation.

24 Q And if you are satisfied with their
25 methodology and the way they are conducting their

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealgross.com

1 inspection, based upon what you learned, then you give
2 a pass to that inspection, correct?

3 A Right. We -- in fact, specifically, we
4 have to answer a series of questions, but if
5 everything was consistent with what the bulletin
6 required, that would be the end of our inspection,
7 yes.

8 MR. WISE: That's all I have, Your Honor.
9 Thank you.

10 JUDGE FARRAR: Mr. Ghasemian, do you want
11 to -- do you have redirect or --

12 MR. GHASEMIAN: Yes, Your Honor. But
13 before that, could I -- could we have a five-minute
14 recess, so I can confer with my colleagues?

15 JUDGE FARRAR: Excellent suggestion. I
16 was -- we were going to do the same. Let's take,
17 then, a longer break, make it our mid-afternoon break.
18 It's 13 after. Yes, let's come back at half past.

19 (Whereupon, the proceedings in the
20 foregoing matter went off the record at
21 3:14 p.m. and went back on the record at
22 3:30 p.m.)

23 JUDGE FARRAR: Back on the record. Mr.
24 Ghasemian, before you do your redirect, Judge
25 Trikouros has a question or two.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 JUDGE TRIKOUROS: Yes. Mr. Holmberg.

2 THE WITNESS: Yes.

3 JUDGE TRIKOUROS: The region that's
4 obscured by what's called flange leakage in a few of
5 your slides. Is there any correlation between that
6 and the leakage from the later found leakage from the
7 CRDM nozzle? I couldn't tell if it was three or five.
8 It looked like it started at five and spread out. But
9 it encompassed three.

10 THE WITNESS: Okay.

11 JUDGE TRIKOUROS: The three was sort of
12 prominent.

13 THE WITNESS: Yes. Let me try to explain
14 that. As one of the things I did is participate on
15 the AIT as I mentioned. So to answer this, I've got
16 a background of what we found with respect to the head
17 degradation. So the actual nozzles that were leaking,
18 there were three with through-all leakages or through-
19 all cracks that could have provided a source for
20 leakage, basically nozzles one, two and three.

21 The nozzle three location is the location
22 that had the largest axial crack and the cavity was
23 found between nozzle three and 11. It progressed from
24 three out toward nozzle 11.

25 And so to answer your question, that large

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 cavity and the characteristics of the cracking
2 suggested that that was the principal or primary
3 location or the largest leak source, if you will, from
4 the nozzles. Nozzle two, for instances, also had
5 leakage and it had the beginnings of a cavity forming.
6 It had a small shallow cavity forming behind nozzle
7 two.

8 So as far as -- You know I don't have a
9 head map in front of me, but if you look, the center
10 most near the center nozzle, do you see nozzles two
11 and three locations, that would have been your primary
12 sources of leakage from the nozzles.

13 JUDGE TRIKOUROS: Okay. Thank you. And
14 one other thing you could clear for me and this is
15 something I just realized that I hadn't known before
16 I came, there were nozzles represented as being
17 inspected and found acceptable but there was no video
18 record. Is that correct?

19 THE WITNESS: That is what the licensee's
20 submittal said, yes.

21 JUDGE TRIKOUROS: Okay. Fine. Thank you.

22 JUDGE FARRAR: Mr. Ghasemian, go ahead
23 with your redirect.

24 MR. GHASEMIAN: Thank you, Your Honor.

25 REDIRECT EXAMINATION

NEAL R. GROSS
COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 BY MR. GHASEMIAN:

2 Q Mr. Holmberg, what did the bulletin --
3 what kind of information regarding past inspections
4 did the bulletin seek from licensees relating to the
5 vessel, their vessel heads?

6 A The inspections that Bulletin 2101
7 expected was that an effective or qualified visual
8 inspection be done depending on the bin your plant
9 fell in and for Davis-Besse the qualified inspection
10 as we went over earlier encompassed both an analytical
11 component as well as the effective inspection and it
12 was expected that 100 percent of the nozzles had
13 received that inspection.

14 Q Did it make any exceptions as far as what
15 portions of a nozzle could be seen to make that
16 determination of what could be viewed or not?

17 A No, it did not. But it did state that
18 there should be no interfering insulation or other
19 debris that could mask your determination of leakage.

20 Q Okay. Going to Exhibit No. 52 and those
21 were your notes of the 10/3 teleconference, do you
22 remember Mr. Wise asking you about my questions
23 regarding these couple of sentences here that I'm
24 highlighting?

25 A Yes.

1 Q Now the first -- Well, it's the second
2 sentence in the paragraph, but the first sentence
3 highlighted, it says, "The Licensee stated that 100
4 percent of the head was inspected."

5 A Yes.

6 Q Which included the CDR housing head
7 interface, right?

8 A Right. That's correct.

9 Q And then it goes on to say, "However, for
10 five or six nozzles near the center of the head, boric
11 acid from CRD flange leakage precluded definitive
12 conclusions that the CRD nozzle wells were not
13 leaking."

14 A Correct.

15 Q What does the language precluded definite
16 conclusions regarding those nozzles mean to you?

17 A It implies that they inspected those
18 nozzles and found deposits that precluded or that
19 obscured those nozzles.

20 Q So they could see those nozzles.

21 A That's what it implies, yes.

22 Q But they just couldn't determine where the
23 leakage or the boron came from.

24 A That's correct.

25 Q So, to you, does that fit the 100 percent

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 inspection?

2 A No.

3 Q As far as what they're representing on the

4 --

5 A They say they did a 100 percent
6 inspection. So that statement is not inconsistent
7 with doing 100 percent inspection in terms of trying
8 to look at all the vessel head penetration nozzles.

9 Q Okay. Now let's go to Exhibit No. 69
10 which was the results of your review of the videotapes
11 and let's go to the 1996 diagram. Now we briefly
12 discussed before, but the nozzles that are indicated
13 as no visual, what does that mean?

14 A That means that there was no view of the
15 interface region for that nozzle on the videotape and,
16 to clarify that, I had to have a view that had some
17 portion and I cut that off at 1/8th of a nozzle viewed
18 in the videotape.

19 Q A follow-up to the Judge's question, were
20 all those nozzles actually on the videotape? Were
21 they videotaped?

22 A I don't believe those nozzles at the
23 interface region are on the videotape.

24 Q So there was no --

25 A Not at the interface region.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 Q So there was no images of those nozzles at

2 --

3 A Not that I could discern that I would see.
4 If I saw -- I was trying to be as, how shall I put it,
5 generous as possible. If they saw an 1/8th, like I
6 said that's half of a quadrant. If I could see half
7 of a quadrant of an interface area, it went on my
8 table as viewed.

9 Q Without any contradictory other views that
10 showed boron.

11 A Yes, it didn't matter what the condition
12 of the interface was. That was --

13 Q That's all you saw.

14 A Right.

15 MR. GHASEMIAN: Now, Your Honor, may I
16 approach one of the models?

17 BY MR. GHASEMIAN:

18 Q Actually before we do that, let's go back
19 to a diagram that you have here and do you remember
20 when I was asking you questions I asked you a
21 hypothetical about, I think, it was in the 2000
22 whether if the flange nozzle number three leaked, how
23 likely was it that boron would end up at nozzle 66?
24 Do you remember when I asked some questions about
25 that?

1 A Yes, I do.

2 Q Okay, and Mr. Wise asked you some follow-
3 up questions and you discussed how that can happen.

4 A I discussed that you could either get
5 leakage that runs down the nozzle or spray could hit
6 the adjacent nozzles and the most likely targets would
7 be the ones directly adjacent to the nozzle that's
8 leaking.

9 MR. GHASEMIAN: Okay. May I approach the
10 model now?

11 (No verbal response.)

12 BY MR. GHASEMIAN:

13 Q Now I think nozzle three roughly wasn't at
14 the crown of the vessel head. It was like in the next
15 row, would you say?

16 A Yes, it wasn't dead center. It was the
17 next one over.

18 Q So this is kind of roughly and this is the
19 area that the flange number.

20 A That could be a flange three type
21 location.

22 Q And number 66 is somewhere around here
23 (Indicating) or maybe it's the cross sectional but
24 probably this would be it, right?

25 A Right.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 Q So Mr. Wise was asking you if there could
2 be a -- I forget the terminology that was used.

3 A Spray.

4 Q Spray. Would it be possible so that the
5 flange would -- from here and there would be a gray
6 that there would be a spray that would -- I guess the
7 way I'm looking at it could it pull through all these
8 flanges and end up here in the cool-down? How likely
9 is that?

10 A It would be very unlikely to go that far
11 through all those different penetration nozzles.

12 Q Is it impossible?

13 A Offhand I don't see a mechanism to get it
14 there. No.

15 Q Do you remember Mr. Wise was asking you
16 about interference fits at the crown relating to
17 nozzles at the crown of the vessel head?

18 A Yes.

19 Q Are any assumptions made in using the
20 interference fits or making any judgments for nozzles
21 relating to their interference fit?

22 A Yes, they first of all assumed that
23 everything was fabricated as designed so that if there
24 was any inconsistencies, if they had the -- sometimes
25 they may have to even straighten a nozzle out, if

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 there is surface roughness or things that aren't
2 accounted for even though it may specify a surface
3 finish, maybe it ended up being a little rougher than
4 that, if there is some imperfections that weren't in
5 the records, they could effect the interference and
6 fit and the assumptions made in the analysis.

7 Q So is it fair to say that depending on the
8 assumptions that are made that may change any
9 conclusions that may be drawn relating to the
10 interference fit of a potential nozzle?

11 A Yes. Absolutely.

12 MR. GHASEMIAN: No more questions, Your
13 Honor.

14 JUDGE FARRAR: Okay.

15 MR. WISE: I have one.

16 JUDGE FARRAR: Judge Trikouros has a
17 question and then we'll --

18 MR. WISE: I will defer to Judge
19 Trikouros.

20 JUDGE TRIKOUROS: Just one more question.
21 Are you aware if there was any indication of boron
22 precipitation in the containment fan cooling system at
23 all?

24 THE WITNESS: Yes. As part of our AIT
25 inspection, we looked at indicators of leakage and to

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 see what was available to the site to determine if
2 they had some early indications of leakage and
3 certainly the containment fan coolers served as a site
4 that actually condensed moisture out of the air and
5 that if you had an active, in this case, steam leak
6 the steam escaping still contains a certain amount of
7 boric acid. Wherever that condenses, boric acid then
8 comes out of solution and deposits in a solid form.
9 So the containment fan coolers ended up with boric
10 acid deposits in those units.

11 JUDGE TRIKOUROS: They did. How much? I
12 don't know how to characterize it. Was a significant
13 amount of boric acid in the fan compartment there or
14 was it --

15 THE WITNESS: Yes, there was a substantial
16 nozzle boric acid. I believe they had to shovel it
17 out and I think the AIT report will be a better
18 source. There was another person doing that facet of
19 the review, but the report is available for your
20 review or should be. If not, I can provide you
21 copies.

22 JUDGE TRIKOUROS: And that would be
23 indicative of flange leakage, correct?

24 THE WITNESS: It could be -- Actually, it
25 could be indicative of any kind of leakage from the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 reactor coolant system, anything that resulted in an
2 airborne or a steam release.

3 JUDGE TRIKOUROS: I understand. I
4 understand it could be any leakage anywhere.

5 THE WITNESS: Right.

6 JUDGE TRIKOUROS: But if it were leakage
7 from the region we're discussing it would be from the
8 flanges and nowhere else.

9 THE WITNESS: The flanges are one source,
10 but even leakage from underneath the insulation
11 structure there's a ventilation system that can
12 capture it and draw it up and into the atmosphere. So
13 I wouldn't just say it had to only be from flange
14 leakage. No, I would say that it's possible from
15 other sources, too, and not just the head area, any
16 other unidentified or identified leakage. If they
17 knew a flange was leaking elsewhere in the reactor
18 coolant system, it would then produce steam that would
19 be available to condense and hence precipitate boric
20 acid. So it's not strictly these two sources.

21 JUDGE TRIKOUROS: And in conjunction with
22 that, are you aware of any operability determinations
23 that were made regarding the fan cooler operability as
24 a result of the boron precipitation or any such issues
25 that came up earlier between inspections?

1 THE WITNESS: There was a time frame where
2 they tried to track down the source of the leakage.
3 They recognized this was coming from something, but
4 they had other components that were potentially
5 contributing to that leakage and again, of course, a
6 portion of it could have been attributed to flange
7 leakage.

8 But I believe there were other reasons
9 they thought that that boric acid was collecting at
10 the time. Offhand, I can't remember what it was.
11 Again, it's been a few years. It would be better to
12 pull the report and see how they describe what the
13 licensee thought was the source at the time.

14 JUDGE TRIKOUROS: Thank you.

15 JUDGE FARRAR: Mr. Wise, go ahead.

16 MR. WISE: Your Honor, I don't have
17 anything further.

18 JUDGE FARRAR: Judge Hawkens has a
19 question.

20 JUDGE HAWKENS: When Mr. Wise was asking
21 you how far the spray if it was a high level of volume
22 spraying from the flange would go, I understood you to
23 say it possibly could go one row, two rows, possibly
24 three rows. But then on redirect, did I understand
25 you correctly that you thought it was impossible to go

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 if there was a flange leak from number three to number
2 66?

3 THE WITNESS: Yes. If you look it gets
4 more difficult for me to -- Can I approach the model?

5 JUDGE FARRAR: Certainly.

6 THE WITNESS: It's easier if I point to
7 it.

8 (Off the record comments.)

9 So what was pointed on is if a leakage
10 source is at this location and this elevation
11 (Indicating) you can see -- Because of the diameter of
12 the flanges you can see it's larger than the nozzle.
13 They are very densely packed. You might say they're
14 about as close together as you could get the things.
15 Okay? So a spray, certainly you can picture a spray
16 coming out and hitting any of the adjacent flanges.
17 That's easy to believe and you may even have a line
18 that could come through and hit the next one over.
19 Okay? I can -- I don't know. Can you see this?

20 If this is my leak source, I could hit
21 that flange, right? Okay. But how the heck do I get
22 clear out to there? How do I -- I just can't do it.
23 I got flanges in the way. So that's why I can picture
24 the immediate row, maybe the one after. But after
25 that, I just don't see a path and it is basically a

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 line of sight kind of thing. I don't know how you
2 would, what mechanism would get it there. So that was
3 my answer.

4 MR. WISE: Judge, now I do have one
5 question.

6 THE WITNESS: Do you want me to stay here?

7 MR. WISE: No, that's fine.

8 THE WITNESS: Okay.

9 RE CROSS EXAMINATION

10 BY MR. WISE:

11 Q. The hypothetical you just gave assumes
12 that all of the nozzles are strictly parallel,
13 correct?

14 A. The flanges -- I'm sorry. The flanges all
15 sit at the same elevation.

16 Q. And the hypothetical assumes that all the
17 nozzles are straight up and down, perfectly straight
18 up and down.

19 A. Yes.

20 Q. If one of the nozzles were slightly out of
21 plumb, that would allow for there to be greater
22 travel, correct?

23 A. I suppose. But keep in mind there's a
24 certain vertical height there. So even if you pointed
25 the stream up and down you're still running into the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 adjacent -- I mean I don't know. You can only go so
2 far out of plumb. They're very close.

3 Q Okay. First of all, the flange part of
4 this case was not within your expertise.

5 A No. You're drifting outside of what I did
6 my reviews for. You're asking me my opinion about a
7 hypothetical leak. So that's what I'm trying to give.

8 Q You're aware that there was another report
9 done after the AIT called the exponent failure report.

10 A Yes, I am aware of that.

11 Q Are you aware that one of the findings was
12 that the nozzle that had the greatest leak rate had
13 both a steam cut and was out of plumb?

14 A I haven't read that report in detail. In
15 fact, I think at one point we were asked not to look
16 at it because we were in the middle of some DOJ work
17 or something. So the answer is no, I wasn't familiar
18 with whatever their conclusions were.

19 Q Based on your expertise, if those two
20 conditions were present, I take it you would agree
21 with me that would explain how you could get a far
22 further spray than you might expect in the absence of
23 a steam cut and if the nozzles were perfectly
24 parallel, correct?

25 A Again, without having some sort of mock-

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 up, but I would say you know if you start changing the
2 angle of the spray and somehow you could get it over
3 your neighbor's, maybe there is some sort of what
4 you're saying. But I don't know how you would get it
5 out of plumb enough to make that kind of argument. I
6 just can't envision that even if you tilted it over
7 that it wouldn't hit the adjacent nozzles and block
8 the spray from going anywhere. I just can't picture
9 that because they're too close if you look at that
10 model.

11 MR. WISE: That's all I have, Your Honor.

12 JUDGE TRIKOUROS: I could keep pursuing
13 certain questions, but let me just ask you flat out.
14 If you are aware when all the evidence was in after
15 the outage in February, I believe it was, and all of
16 the analyses were done was there any circumferential
17 cracking that was greater than the predicted during
18 all the earlier discussions?

19 THE WITNESS: Davis-Besse did experience
20 one nozzle with a circumferential crack. It was not
21 through-wall. So it actually did not have any, what
22 I'll call, structurally significant circumferential
23 flaws, nothing approaching the size that was
24 discovered at Oconee.

25 JUDGE TRIKOUROS: So the PRA analysis that

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 was done earlier was essentially correct.

2 THE WITNESS: Boy, when you start getting
3 in PRA, I -- I think what you mean and correct me if
4 I'm wrong, but there were analysis that tried to
5 predict what the biggest circumferential flaw could be
6 and some of those did go into probability arguments.

7 JUDGE TRIKOUROS: Right.

8 THE WITNESS: And I didn't review those in
9 depth, but that's not my field of expertise and so all
10 I can say is they were certainly bounded by what was
11 found at the Oconee results. There was nothing that
12 was from a circumferential cracking standpoint as
13 significant as what was discovered at Oconee.

14 JUDGE TRIKOUROS: So there was no danger
15 of a rod ejection event or anything along those lines.

16 THE WITNESS: Well, you're asking a very
17 dangerous question now. We, the NRC, found that it
18 was of high risk significance. There was, how shall
19 I put it, many months of educated debate, analysis if
20 you will, to try to determine a risk picture because
21 remember it wasn't just cracking for Davis-Besse. You
22 developed an area that essentially lost what we credit
23 is the pressure boundary, the reactor vessel head.
24 You had the five by seven area that was basically
25 corroded all the way down to the cladding. So that

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 area presented some risk. In fact, it was even
2 actually deflected upward from the pressure.

3 JUDGE TRIKOUROS: I understand and if you
4 exclude any issue associated with the wastage cavity.

5 THE WITNESS: Right. Okay.

6 JUDGE TRIKOUROS: Where the basic
7 statements made in all the meetings and all of the
8 submittals regarding this 2001-01 issue which was
9 really not wastage. It was --

10 THE WITNESS: Circumferential cracking.

11 JUDGE TRIKOUROS: Circumferential cracking
12 of the penetrations. Was that all basically correct?

13 THE WITNESS: Yes, the presumption that
14 they would not have large circumferential cracking
15 before they shut down and did the inspection, that
16 part of it was correct. Yes.

17 JUDGE TRIKOUROS: Thank you.

18 JUDGE FARRAR: It looks like there are no
19 more questions.

20 MR. GHASEMIAN: Could I ask one more
21 follow-up?

22 JUDGE FARRAR: Go ahead.

23 REDIRECT EXAMINATION (Cont'd.)

24 BY MR. GHASEMIAN:

25 Q Relating to what the bulletin sought

1 relating to past vessel head inspections, was the
2 information that was provided relating to Davis-
3 Besse's past activities in their inspections, was that
4 consistent with what you found in your review?

5 A No, the extent of their inspections and
6 the quality of their inspections was not consistent
7 with my understanding of what the bulletin was trying
8 to get the licensees to confirm that they had done.
9 So the answer is no.

10 MR. GHASEMIAN: No more questions, Your
11 Honor.

12 JUDGE FARRAR: All right. Mr. Holmberg,
13 that concludes your testimony. The Board wants to
14 thank you for what appeared to be a forthright and
15 thoughtful attempt to provide your expert testimony
16 and to respond to questions you knew the answer to and
17 not to respond to those that you didn't and we
18 appreciate you coming and providing the testimony.

19 THE WITNESS: Okay. Thank you.

20 JUDGE FARRAR: Thank you.

21 (Witness excused.)

22 And, Mr. Ghasemian, after scaring me with
23 your three or four hours, I appreciate you finishing
24 fairly quickly. So that concludes Mr. Holmberg. Are
25 you prepared to call Dr. Hiser?

1. MR. GHASEMIAN: Your Honor, we were and we
2 are, but there was a personal issue that arose with
3 Mr. Hiser just a few minutes ago. We haven't seen it,
4 but I think there was an email sent out in the NRC
5 that there was a young daughter of one of NRC
6 employee's who's a good friend of Mr. Hiser was in
7 some kind of an accident and is now deceased.

8 JUDGE FARRAR: I saw that.

9 MR. GHASEMIAN: And therefore he's kind of
10 not in a condition to testify. So we would ask that
11 we could kind of postpone his -- We can switch out the
12 order a little bit and have him testify Wednesday
13 maybe or maybe tomorrow depending on his state of
14 being.

15 JUDGE FARRAR: That was -- It was Mr.
16 Caldwell.

17 MR. GHASEMIAN: Yes, Your Honor.

18 JUDGE FARRAR: A colleague of his, a close
19 colleague of his?

20 MR. GHASEMIAN: Yes.

21 JUDGE FARRAR: Fine. Certainly, Mr. Wise
22 would have no objection to that.

23 MR. WISE: Of course not.

24 JUDGE FARRAR: Certainly, that's a valid
25 reason. Is Mr. Martin available?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 MR. GHASEMIAN: Unfortunately, we don't
2 have -- Our other non NRC employee witnesses are
3 traveling in from out-of-town and they're arriving I
4 believe tonight. So they'll be here tomorrow. So we
5 could have -- start first thing with one of those
6 witnesses.

7 JUDGE FARRAR: Okay. Mr. Martin and Mr.
8 Goyal, so they're coming in tonight.

9 MR. GHASEMIAN: Yes. The last I checked.

10 JUDGE FARRAR: Can everyone be here at
11 8:30 a.m. tomorrow?

12 MR. WISE: Yes, Your Honor.

13 MR. GHASEMIAN: Yes, Your Honor.

14 JUDGE FARRAR: Can you be here earlier?
15 Do we want to do earlier or -- I'm concerned about
16 them coming in and --

17 MR. WISE: We could start at 8:00 a.m. if
18 the Court is inclined.

19 MR. GHASEMIAN: I think as far as I know
20 one of the -- They may be getting in late. They're
21 coming -- At least one of them is coming after work
22 from the Midwest. So I think he's getting in after,
23 at least, landing after 10:00 p.m. or 11:00 p.m. So
24 I think if we could start at 8:30 a.m. that would give
25 him a little bit more time to --

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 JUDGE FARRAR: Then why don't we do 8:30
2 a.m. and plan to -- I think given the estimates I
3 think it was Ms. Clark gave us we should be able to
4 finish both of them tomorrow, make an effort to do
5 that. Is there anyone who can substitute for Dr.
6 Hiser if he turns out to be unavailable for the next
7 two or three days?

8 MS. CLARK: He told us that he thought
9 that he should be able to still testify. He just
10 couldn't do it this afternoon.

11 JUDGE FARRAR: Okay. If depending on the
12 timing of the personal events, if it would do him
13 better to do tomorrow morning, then we'll stick to the
14 original order of things and have him come in at 8:30
15 a.m. If not, we'll take Mr. Martin and Mr. Goyal. Is
16 that all right, Mr. Wise?

17 MR. WISE: That's fine.

18 JUDGE FARRAR: In that order.

19 MR. GHASEMIAN: No. If I may request that
20 we'd have Mr. Goyal first. We had basically informed
21 Mr. Martin that based on our schedule we didn't
22 anticipate him to go on until Wednesday. So he's not
23 -- I need to contact him and kind of tell him to be
24 available tomorrow.

25 But Mr. Goyal, I had told him that chances

1 would be that he would go on tomorrow afternoon. So
2 pushing it up in the morning wasn't going to be that
3 much of an issue with him I don't believe.

4 JUDGE FARRAR: Mr. Wise, is that a problem
5 they go out of order?

6 MR. HIBEY: No, we just wanted to know
7 what the order was.

8 JUDGE FARRAR: Okay. I think the answer,
9 Mr. Hibey, is we don't know what the order is which is
10 not the way we like to run things, but certainly it's
11 understandable in the circumstances.

12 Well, let's come back at 8:30 a.m. with
13 whoever you can get here. Eric, Lisa, that's all
14 right with you?

15 PARTICIPANT: Yes. Sorry.

16 JUDGE FARRAR: No, wrong Lisa.

17 PARTICIPANT: I'm sorry. I'm Lisa, too.

18 PARTICIPANT 2: Your Honor, I have a
19 question. Am I scheduled to be back?

20 JUDGE FARRAR: Oh no, you're right. No,
21 you're not.

22 PARTICIPANT 2: I didn't think I was.

23 JUDGE FARRAR: You're right. Thanks for
24 reminding me that pilot project is only one day. We
25 appreciate you being here. I can't wait to see the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 quality of your work. My colleagues tell me it was
2 very good and that's not an easy thing to do
3 particularly when Mr. Wise delivers his opening
4 statement so fast.

5 MR. WISE: That was my slow version, Your
6 Honor.

7 (Laughter.)

8 JUDGE FARRAR: So thank you for your help
9 and you can be somewhere else tomorrow at 8:30 a.m.

10 Eric, 8:30 a.m. is all right with you?

11 (No verbal response.)

12 Okay. Well, then let's adjourn for the -

13 -

14 MS. CLARK: Your Honor, could I raise one
15 thing before we adjourn?

16 JUDGE FARRAR: Certainly.

17 MS. CLARK: From your statement earlier,
18 we wanted to be sure that Ken O'Brien is fully
19 prepared to answer your questions. So we understand
20 that you wanted know about the enforcement actions
21 against other individuals that were involved in these
22 events at Davis-Besse. But we weren't clear on what
23 else you wanted him to discuss.

24 JUDGE FARRAR: Okay. There were the
25 people in Davis-Besse that were charged some by you

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 all, some by the Department of Justice but not by you
2 all. So he might be able to express an opinion on why
3 they were not charged. There might be people who were
4 not charged by either of you but who were involved in
5 these events and some where somebody made a decision
6 not to charge them and that may or may not be
7 relevant. But it could be the subject of question
8 depending on where the rest of the testimony goes, so
9 anybody who was an issue in the Davis-Besse case.

10 I'm informed that there have previously
11 been five years suspensions in the distant past,
12 somebody growing out of Three Mile Island possibly.

13 MS. CLARK: I don't know offhand.

14 JUDGE FARRAR: Okay. But if he can --

15 MS. CLARK: Talk to --

16 JUDGE FARRAR: Find out. In other words,
17 this is not like a United States District Court judge
18 with sentencing guidelines and every week two or three
19 interstate transportation of stolen motor vehicles.
20 I mean, these are rare events and the more we can
21 learn about how they are handled, the more we'll have
22 some idea of what the staff, not that the staff's
23 standards are binding on us, but here's how the staff
24 approaches these, the factors they bring to bear, and
25 that might be guidance to us. So anything in the past

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 could help us.

2 I know many of the enforcement cases are
3 some radiographer misplaces a source device. We don't
4 need to know about those and I think you all deal with
5 things like that routinely. But this is far from
6 routine and if we get to that issue the matter of --
7 If we decide that it was correct to have a sanction,
8 then we want to be able to look at what the sanction
9 was. We, of course, may not reach that question if we
10 decide that no sanction was possible.

11 MR. HIBEY: Your Honor.

12 JUDGE FARRAR: Was not possible. Was
13 appropriate.

14 Yes, Mr. Hibey.

15 MR. HIBEY: Your Honor, may I request that
16 in light of the Court's direction to the staff that
17 the staff reconsider the disclosures that they have
18 not made for us that would be in aid of the questions
19 you put to them at this point. There are examples of
20 the assertion of a deliverative process privilege
21 which may very well go to the questions that you are
22 now alerting the staff might be of interest to this
23 panel.

24 We have not deposed -- This is an
25 observation. It is not a compliant. We have not

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 deposed Mr. O'Brien and so we'll be hearing what he
2 has to say for the first time. So to the extent that
3 there are materials that are indeed relevant to the
4 questions which the Court has now identified might
5 come within the realm of its consideration and perhaps
6 the staff might be obligated to disclose documents
7 that we have heretofore not seen.

8 JUDGE FARRAR: Ms. Clark.

9 MS. CLARK: There are documents that have
10 been withheld as deliverative process documents. I
11 don't believe that the staff's deliverative processes
12 are relevant to this proceeding.

13 JUDGE FARRAR: First off, is that an
14 absolute privilege or a qualified one?

15 MS. CLARK: It's a qualified privilege.

16 JUDGE FARRAR: Okay. Wait. You're
17 thinking they're not relevant.

18 MS. CLARK: Well, Mr. O'Brien's prepared
19 to testify about the final decision that was reached
20 by the staff and he can speak to all the factors that
21 were considered and how the staff considered those
22 factors. But to the extent that those documents show
23 preliminary views that various staff members may have
24 had we don't believe those are necessary to the
25 determination of the sanction that's appropriate in

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 this case.

2 JUDGE FARRAR: Mr. Hibey, were you talking
3 about interim documents or were you talking about the
4 final memorandum that said we have decided not to
5 pursue anything against Mr. X for the following
6 reasons?

7 MR. HIBEY: In candor, the latter because
8 we understood the assertion of the deliverative
9 process privilege to be such that they did not want to
10 share internal debates with us. I don't think I can
11 stand here and justify a request for internal debates.

12 On the other hand, one has to recognize
13 what this witness is and what he represents. He
14 smacks of a 30(b)(6) type of witness meaning that he
15 may very well not have direct experience but that he's
16 going to be talking in general about decisions that
17 were made and I'm troubled by that. I'm assuming
18 we'll find out that this man actually had a role in
19 the decision to impose a penalty. But if he didn't
20 and he's merely here to tell us how things are done
21 and that how he understands this penalty was
22 fashioned, then it seems to me the only way we can
23 truly probe what he has to say and determine its
24 value, if there's any value to it whatsoever, is to
25 share with us as much documentation as possible

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 surrounding the question of the fashioning of the
2 sanction of Mr. Geisen as well as others who were
3 sanctioned in these circumstances or who were not.

4 I just think we're talking -- We're in the
5 realm of equity and fairness in a world where there
6 are no sentencing guidelines and I have to say "Thank
7 God for that" and therefore we're a little bit at a
8 loss and what we don't need is a witness to come up
9 here and pontificate on what prosecutorial interests
10 are being vindicated by sanctioning this man at all.
11 I think the questions are a little more subtle than
12 that and while I'm sure he'll have his moment where
13 he'll say what I just hope he can keep to a minimum,
14 there are practical and immediate questions having to
15 do with these factors.

16 I'd like to know how they were ascertained
17 and if it's on paper it seems to me that's the only
18 way I can test what he has to say. And the only way
19 in which this Court can evaluate the position that the
20 staff is taking on the question of sanctions.

21 JUDGE FARRAR: You do yourself a little
22 bit of injustice since you've been doing this for a
23 great many years. But I know it would be better for
24 you to have the documents rather than --

25 MR. HIBEY: I've done it and I relied upon

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 my experience in the past to take witnesses cold and
2 we said that from the onset.

3 JUDGE FARRAR: Right.

4 MR. HIBEY: And I perceive from that.
5 It's just that I can say in probably over 40 years of
6 trying cases such as this I've never had the
7 opportunity to cross examine this kind of witness. So
8 if I can get a little documentary assist not as a
9 favor to me but consistent with the interests that are
10 being litigated, then I respectfully request that that
11 information be provided.

12 JUDGE FARRAR: Ms. Clark, are there -- I
13 assume that there was some final document for Mr.
14 Geisen and I think the Board is entirely with you on
15 not wanting to see the pre-decisional memoranda that
16 different people sent in. We don't want to chill
17 their right to give their bosses advice. But
18 somewhere is a final memorandum from somebody to
19 somebody saying, "Here's what we recommend" or "Here's
20 what we are going to do with Mr. Geisen and with
21 several other people on going to do or not going to
22 do." So can we gather those for Mr. Hibey?

23 MS. CLARK: In our process, the final
24 document for the ultimate decision on the sanction is
25 in the final enforcement worksheet which we have

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 provided to Mr. Geisen. So they do have the final
2 document that --

3 JUDGE FARRAR: As to him.

4 MS. CLARK: Yes.

5 JUDGE FARRAR: Okay. How about as to Mr.
6 Miller and Mr. Mofitt, for example?

7 MS. CLARK: Yes, and others also. He has
8 gotten all of those.

9 JUDGE FARRAR: And as to the people whom
10 the Justice Department charged, but you all did not
11 and I had that here somewhere. Well, you all also did
12 Mr. Siemaszko, but you didn't charge Mr. Cook or Mr.
13 Goyal.

14 MS. CLARK: I know. We know that they
15 have gotten Miller, Mofitt and Siemaszko.

16 JUDGE FARRAR: All of whom you charged.

17 MS. CLARK: And Goyal also.

18 JUDGE FARRAR: Oh, you did?

19 MS. CLARK: Yes.

20 JUDGE FARRAR: And that was a decision not
21 to charge him.

22 MS. CLARK: We did charge him.

23 JUDGE FARRAR: He did the deferred
24 prosecution of justice.

25 MS. CLARK: Yes.

1 MR. HIBEY: He did, but he was also
2 debarred for a year.

3 JUDGE FARRAR: Right.

4 MR. HIBEY: Yes.

5 JUDGE FARRAR: You did not charge Cook.

6 MS. CLARK: No.

7 JUDGE FARRAR: Is there a memo on him?

8 MR. GHASEMIAN: I don't believe there is -
9 - I haven't seen one. It doesn't jump out in my mind
10 right now.

11 JUDGE FARRAR: Can you undertake to find
12 out if there is one?

13 MR. GHASEMIAN: For Mr. Cook?

14 JUDGE FARRAR: Yes.

15 MR. GHASEMIAN: Your Honor, based on my
16 understanding of the enforcement process, if we don't
17 take action against an individual, then there won't be
18 any enforcement-related documents generally speaking.
19 I mean, there may be an exception here and there. But
20 generally speaking if we're not going to take
21 enforcement action against an individual, then by
22 implication there isn't going to be that much
23 enforcement-related documents.

24 JUDGE FARRAR: There may not be the same
25 sort of -- Right, I understand that a document saying

1 we're going to charge somebody is a bigger deal than
2 a decision somewhere along the way not to charge
3 somebody which might say "We've looked at this and
4 this guy is not involved." It may be a one page memo
5 that said, "This poor fellow was out fishing when all
6 this happened." That may be all you come up with.

7 But presumably given the cooperation
8 between the Justice Department and you all, there's
9 something in your files that's a final decision about
10 Mr. Cook. It may be a trivial piece of paper, but
11 there would be something there.

12 MR. GHASEMIAN: I don't know for a fact.
13 We don't know for a fact, but we'll definitely check
14 into it.

15 JUDGE FARRAR: All I'm asking you to do is
16 look for it.

17 MR. GHASEMIAN: But I know there are
18 sometimes closeout letters that we sent to the
19 individual directly and it's personal and nonpublic
20 and there may be that type of a letter. I don't know
21 for a fact, but I know in other cases that's been the
22 case.

23 JUDGE FARRAR: I assume one of two things,
24 either that individual's right to privacy is
25 overridden by Mr. Geisen's rights and/or that we can

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701

1 protect that document from public disclosure and if we
2 have to clear the courtroom to ask Mr. O'Brien about
3 that person we will and do it -- Eric, you do separate
4 closed transcripts. So we could do that.

5 Is there a document about Mr. Campbell?

6 MR. GHASEMIAN: Guy Campbell?

7 JUDGE FARRAR: Yes.

8 MR. GHASEMIAN: I don't know. I don't
9 know for a fact. We need to check.

10 JUDGE FARRAR: Will you check that for us
11 please?

12 MR. GHASEMIAN: Yes.

13 JUDGE FARRAR: Okay. So you'll get those
14 for Mr. Hibey or make a representation that there is
15 no such document and understand. I'm not looking for
16 the same kind of document that you did for Mr. Geisen
17 because that took more -- I assume a charge takes more
18 of an approval process than a non-charge but whatever
19 led to the non-charges.

20 I thought we were finished 15 minutes ago.
21 How did that come up?

22 Mr. Hibey, was that you who raised that?

23 MR. HIBEY: Yes.

24 JUDGE FARRAR: We were doing good with you
25 quiet all day.

1 (Laughter.)

2 All right. Then we'll come back at 8:30
3 a.m. tomorrow with whomever we can find and we're
4 still looking at Mr. O'Brien after Mr. Geisen and
5 extend our condolences to Dr. Hiser on his friend's
6 loss of his daughter and we'll work him in when we
7 can.

8 MR. GHASEMIAN: Thank you.

9 JUDGE FARRAR: And we'll see you at 8:30
10 a.m. tomorrow morning. Off the record.

11 (Whereupon, at 4:20 p.m., the above-
12 entitled matter recessed to reconvene at 8:30 a.m. the
13 next day.)

CERTIFICATE

This is to certify that the attached proceedings
before the United States Nuclear Regulatory Commission
in the matter of: David Geisen

Name of Proceeding: Evidentiary Hearing

Docket Number: IA-05-052;

ASLB No. 06-845-01-EA

Location: Rockville, Maryland

were held as herein appears, and that this is the
original transcript thereof for the file of the United
States Nuclear Regulatory Commission taken by me and,
thereafter reduced to typewriting by me or under the
direction of the court reporting company, and that the
transcript is a true and accurate record of the
foregoing proceedings.



Eric Mollen
Official Reporter
Neal R. Gross & Co., Inc.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVE., N.W.
WASHINGTON, D.C. 20005-3701