

Deposition Testimony of:

Michael Byrd

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Page 394:05 to 394:15

5 Q. And do you agree that Topic 22
6 is a topic for which you have been designated
7 as the 30(b)(6) witness for BP?
8 A. Yes.
9 Q. And the statement or the topic
10 in 22 states: "The nature, type, model,
11 adequacy and/or configuration of the BOP
12 assembly to be utilized for the drilling of
13 the Macondo Well by the DEEPWATER HORIZON."
14 Did I read that correctly?
15 A. Yes, you did.

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7 words. Do you know basically what type of
8 BOP was utilized for the Macondo Well in the
9 DEEPWATER HORIZON?
10 A. The overall assembly would be a
11 15K -- would be designated as a 10 and
12 three-quarter 15K or 15,000 psi BOP -- subsea
13 BOP system.

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25 Q. Do you have any knowledge as to
1 whether or not the BOP was adequate for the
2 Macondo Well?
3 A. In preparation in discussion
4 with Mr. Bowles and with Mr. Skelton and the
5 assessments that were -- that were performed
6 by the Wells Team or the drilling team, and
7 in addition to the review or the comparison
8 to the previous wells, or the previous
9 well -- the Tiber well that had been drilled
10 by the HORIZON, there didn't appear to be
11 anything would say that the BOP was not
12 adequate.
13 Q. Okay. So let me see if I
14 understand. Your basis for saying that this
15 BOP was ade -- adequate for Macondo is
16 Mr. Bowles and Mr. Skelton's statement that
17 the Macondo Well was not as severe of a well
18 as the Tiber Well. Do I have that right?
19 A. That was only a portion of it.

20 Q. And what's the other portion.

21 A. Specifically talking about the
22 pressures and temperatures that the BOP would
23 be subject to, there was no indication that
24 the BOP would be unable to perform.

25 Q. Did Mr. Bowles or Mr. Skelton do
1 an analysis of the temperatures and pressures
2 related to the Macondo Well in order to make
3 that assessment?

4 A. An analysis was performed. I
5 don't know if they did all the work. The --
6 the -- the temperature and the pressure were
7 derived by measurements in bottom hole for
8 pressure and temperature and then through
9 collaboration with the subsurface with the
10 geologists is to determine the temperature
11 and pressure gradient to the mud line to
12 determine what the mud line temperature and
13 pressure would be.

14 Q. Who do you believe performed
15 this assessment?

16 A. That would be BP that performed
17 that assessment.

18 Q. Right. Who in BP performed --

19 A. I don't know specifically the
20 name. I don't know the names of our
21 subsurface or reservoir folks. So I -- it
22 was either -- it would have either been the
23 Wells Team or the Wells Team in conjunction
24 or in collaboration with the subsea or -- I'm
25 sorry -- the subsurface team.

1 Q. And to be clear, did you
2 personally review the assessment, or is this
3 something that Mr. Bowles and Mr. Skelton
4 reviewed and provided you information about?

5 A. They provided me information
6 about it.

7 Q. You didn't look at it?

8 A. No, I did not.

9 Q. Did you look at anything else to
10 determine the temperature and pressure
11 characteristics of the Macondo Well?

12 A. I saw the well basis of design
13 that had the temperature and the pressures on
14 it. I saw -- yesterday in my testimony with
15 DOJ, I was presented with a pressure

16 temperature -- or sorry -- a temperature
17 curve that would have corroborated that as
18 well.

19 Q. Okay. But you didn't perform
20 the analysis, taking that temperature and
21 pressure information and then applying it to
22 determine whether the BOP was adequate or
23 not?

24 A. No, I did not.

25 Q. You were relying on the opinion
1 of Mr. Bowles and Mr. Skelton?

2 MR. COLLIER: Object to form.

3 A. Well, it wasn't just opinion. I
4 reviewed data.

5 Q. (BY MR. BAAY) Well, you just
6 agreed with me that you didn't perform the
7 analysis to determine whether it was adequate
8 or not; is that right?

9 A. That's correct.

10 Q. And so my question is: Did you
11 rely on Mr. Bowles and Mr. Skelton's opinion
12 as to whether it was adequate or not?

13 A. I don't consider data and
14 opinion to be the same thing.

15 Q. Well, let me ask it this way:
16 Did anyone give the opinion that this BOP was
17 adequate for the Macondo Well?

18 A. Yes, they did.

19 Q. Who was it?

20 A. Mr. Bowles and Mr. Skelton.

21 Q. Okay. So it is true that those
22 two gentlemen gave you the opinion that the
23 BOP was adequate?

24 A. Yes, they did.

25 Q. And you didn't form that
1 opinion; it was something provided to you?

2 A. I used both their opinion and
3 the data that I had seen.

4 Q. And the data you had seen was
5 the well basis of design?

6 A. The well basis of design and the
7 predicted temperatures -- or predicted
8 temperature and pressure.

9 Q. And you didn't see the
10 predictive pressure and temperature until it
11 was shown to you yesterday in this

12 deposition; is that true?
13 A. That's correct.

Page 400:19 to 401:13

19 questions for Topic No. 23, which is -- which
20 states: "Considerations going into any
21 decision to utilize (or allow the utilization
22 of) the particular BOP stack
23 design/configuration and equipment utilized
24 during the drilling and/or temporary
25 abandonment of the Macondo Well."
1 Same question: Based on your
2 testimony yesterday, it's my understanding
3 you don't have knowledge as to that topic; is
4 that true?
5 A. That's not correct, no.
6 Q. Okay. Tell me how I'm wrong
7 about that.
8 A. In the similar discussions with
9 Mr. Bowles and Mr. Skelton -- excuse me --
10 there was discussion about the ability of
11 the -- the BOP system to handle any of the
12 tubulars that were being used during the
13 drilling operation.

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20 wrong. What -- what I understood you to tell
21 me was that BP takes certain information --
22 well information and provides that to
23 Transocean; is that correct?
24 A. That's correct.
25 Q. Tell me specifically what data
1 you believe BP gives to Transocean to make
2 the calculation.
3 A. It's my understanding that we
4 would provide pressure; we would provide
5 temperature; tubulars, in terms of size,
6 weight, grade; and the specific -- including
7 casing that will be used in the well. In
8 terms of just the mechanical aspects of
9 shearing, to do with shear calculations,
10 that's what I would expect that we would give
11 is to my best -- to my best knowledge.
12 Q. And your understanding is that

13 that data goes to Transocean, and Transocean
14 then gives it to Cameron to make the
15 calculation?

16 A. That's correct.

17 Q. And once Cameron makes the
18 calculation, they return the -- the result of
19 their calculations to Transocean, and then
20 Transocean then gives it to BP?

21 A. That's my understanding,
22 correct.

23 Q. And does BP do anything to
24 verify a calculation performed by Cameron?

25 A. That, I don't know.

1 Q. Okay. Do you know whether BP
2 has the authority to request a shear test if
3 there's any question about the calculation
4 they receive back from Cameron?

Page 405:06 to 405:06

6 A. That, I don't know.

Page 407:06 to 407:07

6 Q. Good morning, Mr. Byrd. My name
7 is David Jones, and I represent Cameron.

Page 407:11 to 407:20

11 Q. Let me go back and talk about
12 the subject that Mr. Baay was just talking
13 about, the pipe shearing calculations. I
14 believe that you testified yesterday that it
15 is an MMS, now BOEMRE, requirement that
16 operators like BP demonstrate that their
17 BOP's are able to shear the pipe that's going
18 to be in the hole; is that your
19 understanding?

20 A. That's my understanding, yes.

Page 408:04 to 408:20

4 Q. (BY MR. JONES) Okay. So
5 sitting here today, as BP's corporate
6 representative, are you able to tell me
7 whether or not BP has ever done shearing

8 calculations for drill pipe?
9 A. No, I can't say one way or the
10 other.
11 Q. All right. Do you know if
12 anybody at BP has ever seen Cameron's formula
13 for doing shearing calculations?
14 A. That, I can't say for sure.
15 Q. All right. You don't know one
16 way or the other?
17 A. No, I don't.
18 Q. Have you ever seen Cameron's
19 formula for doing shearing calculations?
20 A. No.

Page 408:24 to 411:06

24 Q. All right. Yesterday, I believe
25 a document was mentioned, an engineering
1 bulletin that Cameron issued called EB 702 D.
2 Do you remember being asked about that?
3 A. I recall that, yes.
4 Q. And I believe it's your
5 testimony that you have not seen EB 702 D; is
6 that correct?
7 A. That's correct.
8 Q. And in connection with your
9 deposition preparation about a blowout
10 preventer on the Macondo Well, then you were
11 never provided a copy of EB 702 D, correct?
12 A. I never saw a copy.
13 Q. All right. Do you know if
14 anyone at BP has seen EB 702 D?
15 A. I don't know.
16 Q. All right.
17 In preparation for your
18 deposition, did you ever ask if anybody from
19 BP had any document showing Cameron's
20 calculation for shearing pipe?
21 A. I requested a table that was
22 available, and I don't recall asking for
23 actual calculations.
24 Q. Okay. Did anybody ever mention
25 to you during your preparation that Cameron
1 has a calculation for doing shearing?
2 A. Yes.
3 Q. Who mentioned that to you?

4 A. Mr. Bowles and Mr. Skelton.
5 Q. Okay.
6 A. And I was also aware of that
7 prior to.
8 Q. All right. And did you ever ask
9 anybody during your preparation to see that
10 calculation?
11 A. No, I did not.
12 Q. I'll represent to you that EB702
13 is referenced in the Bly report, in BP's
14 accident investigation report.
15 A. Okay.
16 Q. You had not read the Bly report,
17 correct?
18 A. No, I have not.
19 Q. So that you -- given that it's
20 referenced, clearly BP, at least today, is
21 aware of EB 702 D. Would you agree with me,
22 if my premise is correct that it's mentioned,
23 that BP knows about it today?
24 A. I would agree.
25 Q. And you're not able to tell me
1 when BP first learned about EB 702 D?
2 A. No, I can't.
3 Q. They may have known about it for
4 years; you just don't have any knowledge
5 about that?
6 A. I couldn't say, no.

Page 411:19 to 412:06

19 understanding that that information, after
20 the calculation is run, goes back to
21 Transocean, and that Transocean then provides
22 it to BP, correct?
23 A. Correct.
24 Q. And I'm not sure if you were
25 asked this question, but to whom at BP is
1 that information given?
2 A. I can't state with certainty.
3 The assumption would be that it goes back to
4 the Wells Team that is preparing for a
5 particular well. The rig would be -- or
6 preparing for.

Page 412:19 to 413:04

19 Q. All right. Now, do you know
20 what happened with respect to Macondo
21 regarding shear calculations?
22 A. Not specifically, no.
23 Q. All right. Are you -- well,
24 were there any shear calculations done prior
25 to splashing the BOP on Macondo?
1 A. I don't know.
2 Q. You've never seen it?
3 A. I have not.
4 Q. Should that have been done?

Page 413:06 to 413:23

6 A. As I said in my testimony
7 yesterday, the expectation BP has is that we
8 would provide the types of tubulars that will
9 be the -- will be anticipate to shear to
10 Transocean. I think I also said that there
11 are two -- two ways in which that can be
12 verified. One is the calculations that
13 you've been discussing. The other would be
14 to look at previous -- if previous shear
15 tests were done, then -- then that -- you
16 know, that would be acceptable --
17 Q. (BY MR. JONES) Okay.
18 A. -- demonstration as well.
19 Q. And do you know whether or not
20 previous shear tests were looked at
21 specifically in connection with Macondo
22 before the BOP was splashed?
23 A. No, I do not.

Page 414:07 to 414:20

7 Q. (BY MR. JONES) All right.
8 Well, let me show you -- you were shown
9 yesterday Exhibit 3187.
10 A. Okay.
11 Q. This is an E-mail chain. The
12 first is an E-mail from Forrest Shanks to
13 John Guide, dated May 11, 2010. Do you see
14 that at the bottom?
15 A. I see that.
16 Q. And at the bottom it says, the

17 E-mail: "Jon Sprague tells me you are
18 looking for Cameron shear data."
19 Do you see that?
20 A. Correct.

Page 415:15 to 415:20

15 Q. All right. As BP's corporate
16 representative regarding blowout preventers,
17 you have no knowledge that Mr. Guide had
18 Cameron's shear calculations two weeks after
19 the Macondo incident, correct?
20 A. No, I do not.

Page 415:23 to 416:25

23 Q. (BY MR. JONES) And as BP's
24 corporate representative regarding blowout
25 preventers, you have no knowledge that
1 Mr. Guide had any shear calculations prior to
2 the Macondo incident, correct?
3 A. Not to my knowledge.
4 Q. All right. Let me go back and
5 ask a couple questions about your background.
6 I believe you stated yesterday that you
7 formed a consulting company in 1996; is that
8 correct?
9 A. Yes. I was one of four. I
10 didn't form it myself.
11 Q. Okay. You and others formed it.
12 What was the name of that company?
13 A. Manatee Corporation.
14 Q. All right. So, from 1996 until
15 2000 when you went back to BP, was all of
16 your work through Manatee?
17 A. Yes, it was.
18 Q. And all of that work was as a
19 consultant for various other companies?
20 A. No, just -- well, for BP and the
21 one engagement with Vastar.
22 Q. Other than work for BP and for
23 Vastar, did Manatee do any other consulting
24 work?
25 A. I did not.

Page 417:04 to 417:14

4 Q. So, Manatee was the company for
5 which you were working when you were involved
6 in the DEEPWATER HORIZON build-out, correct?
7 A. That's correct.
8 Q. And in that capacity, you were
9 working as a consultant for Vastar, correct?
10 A. That's correct.
11 Q. And your role, as I understand
12 it, consulting for Vastar on that project was
13 to make sure that the BOP was being built to
14 Vastar's approval; is that correct?

Page 417:16 to 418:02

16 A. My role was to -- let me say
17 that I didn't have the accountability of a
18 single-point accountability of that. I had
19 the accountability of advising Vastar as to
20 whether it was or wasn't being built per the
21 requirements.
22 Q. Okay. So, you were advising
23 Vastar about whether or not the build-out of
24 the BOP was pursuant to their requirements.
25 What Vastar did with that information, that
1 was not your responsibility.
2 A. Exactly.

Page 418:09 to 418:14

9 Q. Okay. And so, just so I'm
10 clear, from the time you joined BP in 2000
11 all the way up until the HORIZON incident,
12 you had no experience or exposure to HORIZON;
13 is that correct?
14 A. That's correct.

Page 422:02 to 425:22

2 Q. Now, there was a head of the BOP
3 team in connection with the Bly
4 investigation, correct?
5 A. Correct.
6 Q. And that was Dr. Abbassian,
7 correct?
8 A. That's correct.

9 Q. And as I understand it from your
10 testimony yesterday, you didn't talk to
11 Dr. Abbassian about blowout preventers in
12 preparation for your deposition, correct?

13 A. No, I did not.

14 Q. Now, Dr. Abbassian had various
15 subteam leaders under him in connection with
16 the investigation. Were you aware of that?

17 A. I wasn't aware, but I'm not
18 surprised.

19 Q. Okay. Did -- you didn't talk to
20 any of his subteam leaders about blowout
21 preventers?

22 A. Not that I'm aware of, no.

23 Q. All right. Do you know Tony
24 Emerson?

25 A. Yes, I do.

1 Q. Does Tony Emerson know anything
2 about blowout preventers?

3 A. Yes, he does.

4 Q. And -- and -- but you didn't
5 talk to Mr. Emerson in preparation for your
6 deposition?

7 A. No, I did not.

8 Q. Do you know Ray Fleming?

9 A. Yes, I do.

10 Q. Do you know if Mr. Fleming knows
11 anything about blowout preventer?

12 A. Mr. Fleming's expertise is in
13 control systems, yes.

14 Q. Control systems for BOP's or
15 control systems for subseas equipment or just
16 control systems --

17 A. Both.

18 Q. -- generally? Both. Okay. Did
19 you discuss with Mr. Fleming any issues
20 associated with blowout preventers in
21 preparation for your deposition?

22 A. No, I did not.

23 Q. Do you know Tim Allen?

24 A. Yes, I do.

25 Q. Does Tim Allen know anything
1 about blowout preventers?

2 A. I really can't speculate on
3 Mr. Allen's knowledge of blowout preventers.

4 Q. Okay. You know Norman Wong, do

5 you not?
6 A. Yes, I do.
7 Q. Did you speak to Norman -- well,
8 Norman knows something about blowout
9 preventer, correct?
10 A. I would assume so.
11 Q. All right. Did you speak to
12 Mr. -- you didn't speak to Mr. Wong in
13 preparation for your deposition?
14 A. No, I did not.
15 Q. You mentioned yesterday that BP
16 now has a blowout preventer subject matter
17 expert or engineering authority, correct?
18 A. I believe that's correct, yes.
19 Q. All right. And you didn't talk
20 to that person --
21 A. No, I did not.
22 Q. -- in preparation for your
23 deposition?
24 A. No.
25 Q. Do you know who that is now?
1 You didn't know yesterday, but did you come
2 up with a name overnight?
3 A. No. Actually, I don't know who
4 that is.
5 Q. Okay. In preparation for your
6 deposition, did you ever ask anyone who the
7 subject matter expert for blowout preventers
8 is?
9 A. No, I did not.
10 Q. Did Mr. Bowles have anything to
11 do with Macondo?
12 A. Not to my knowledge, no.
13 Q. Did Mr. Skelton have anything to
14 do with Macondo?
15 A. Not to my knowledge, no.
16 Q. Did Mr. Coughron have anything
17 to do with Macondo?
18 A. Not to my knowledge, no.
19 Q. So, in preparation for your
20 deposition, you spoke to no one who had
21 anything to do with Macondo, correct?
22 A. That's correct.

24 Q. Were Mr. Bowles and Mr. Skelton
25 involved with Tiber?

1 A. I don't know if they were
2 involved. They did appear to have knowledge
3 of it.

4 Q. All right. Did you ever ask
5 them what their involvement was with Tiber?

6 A. No, I did not.

7 Q. What did they tell you about the
8 pressures with -- at Tiber vis-`-vis Macondo?

9 A. The pressures -- they told me
10 the pressures, the water depth, and the
11 temperature were all in excess of those at
12 Macondo.

13 Q. They told you water depth was in
14 excess of Macondo?

15 A. Yes.

16 Q. Did you ever do anything to
17 verify that?

18 A. No.

19 Q. Sitting here today, other than
20 what they told you, do you know whether or
21 not the water depth at Tiber was deeper than
22 Macondo?

23 A. He told me that Tiber, I
24 believe, was around 9,000 feet.

25 Q. Yesterday I believe you
1 mentioned that the anticipated temperature at
2 Macondo was less than the rated temperature
3 classification in the elastomers that were in
4 the HORIZON BOP on April 20th.

5 Do you recall that?

6 A. That's correct.

7 Q. And who told you that?

8 A. Mr. Skelton and Mr. Bowles told
9 me that.

10 Q. All right. Do you know how they
11 were calculating that anticipated -- well,
12 let me back up.

13 What was that anticipated
14 temperature? Did they give you a specific
15 number?

16 A. I recall that the bottom hole
17 temperature was, I believe, 262 degrees.
18 This is on the Macondo Well.

19 Q. Right.

20 A. And that the -- they said that
21 the temperature at the mud line was somewhere
22 around 150 to 180, which is what you would
23 expect as it cools considerably by the time
24 it gets to the --

25 Q. Do you know how that --

1 A. -- to the surface.

2 Q. -- was calculated?

3 A. I know generally how that was
4 calculated. I don't -- I don't have
5 knowledge of the exact equations that are
6 used.

Page 432:11 to 432:20

11 MR. JONES: I'm going to mark as

12 Exhibit 4109 --

13 (Marked Exhibit No. 4109.)

14 Q. (BY MR. JONES) -- a document
15 that was provided to me this morning. It's
16 entitled: "The BP Parties' Response to
17 Cameron's Supplemental 30(b)(6) Deposition
18 Notice Topic #6."

19 You see that?

20 A. Yes.

Page 434:25 to 435:01

25 Q. All right. The next column

1 is -- or the next row is HORIZON, correct?

Page 436:01 to 436:05

1 Q. Going back up to the row with
2 HORIZON, is it your understanding that
3 Transocean never used a secondary control
4 system on the HORIZON in an emergency
5 situation?

Page 436:07 to 436:12

7 Q. (BY MR. JONES) Let me ask it
8 again.

9 Is that what this document is
10 telling you, that they never used a secondary
11 intervention or secondary control system on

12 the HORIZON in an emergency situation?

Page 436:14 to 436:21

14 A. That would be my understanding.

15 Q. (BY MR. JONES) Okay. So,
16 sitting here today as BP's corporate
17 representative to talk about, among other
18 things, the use of secondary intervention or
19 secondary control systems, it is your belief
20 that that was never done on HORIZON?

21 A. Based on this information.

Page 436:23 to 437:04

23 Q. (BY MR. JONES) Okay. Do you
24 know if there was ever an EDS with a pipe
25 shear on HORIZON?

1 A. Not to my knowledge.

2 Q. Okay. Do you know if there was
3 ever an EDS without a pipe shear on HORIZON?

4 A. Not to my knowledge.

Page 442:06 to 442:16

6 Q. Do you know if BP has schematics
7 such as these for blowout preventers on all
8 the rigs that it uses to draw -- drill
9 deepwater wells in the Gulf of Mexico?

10 A. No, I don't.

11 Q. Did you ever ask, in preparation
12 for your deposition, to see schematics for
13 the blowout preventers that BP has used to
14 drill deepwater wells in the Gulf of Mexico
15 since 2005?

16 A. No, I did not.

Page 444:25 to 445:03

25 Q. All right. BP does not believe
1 that Cameron was responsible for the
2 operation of the blowout preventer, correct?

3 A. I believe that's correct.

Page 446:23 to 447:05

23 Q. All right. Did Cameron have a
24 service hand or employee on the DEEPWATER
25 HORIZON full-time?

1 A. I don't know.

2 Q. Are you aware of -- that Cameron
3 does have contracts with certain drilling
4 contractors to put a service hand on a rig
5 full-time?

Page 447:07 to 450:05

7 A. I don't know that for certain,
8 no.

9 Q. (BY MR. JONES) Okay. You don't
10 know one way or the other?

11 A. No. No.

12 Q. Are you aware that if Transocean
13 had specific maintenance or repair tasks that
14 they did not want to do themselves, that they
15 would, from time to time, call in third
16 parties to work on the blowout preventer --
17 or to maintain -- to perform maintenance on
18 the blowout preventer?

19 A. Yes.

20 Q. One of those parties was
21 Cameron, correct?

22 A. That's what I understand, yes.

23 Q. BP says in its cross-claim
24 against Cameron, quote: "Transocean,
25 however, periodically hired Cameron on
1 various occasions to conduct certain
2 maintenance and repair activities for the
3 DEEPWATER HORIZON BOP."

4 A. Okay.

5 Q. Is that a correct statement?

6 A. As far as I know, yes.

7 Q. Were there other third parties
8 beyond Cameron that Transocean would hire
9 from time to time to perform certain
10 maintenance or repair functions on the
11 HORIZON BOP?

12 A. I have no knowledge of any
13 specifics.

14 Q. Do you have knowledge in
15 general?

16 A. I would say assume that there

17 are other third parties, but I couldn't tell
18 you for certain who they are or what they
19 did.

20 Q. All right. Are you able to tell
21 me when Cameron changed the batteries last in
22 the SEM in the blue pod?

23 A. No, I cannot.

24 Q. If there is testimony that
25 Cameron last replaced the batteries in the
1 blue pod SEM when it prepared the muck
2 section of the blue pod in 2008, do you have
3 any basis to dispute that?

4 A. Not that I'm aware of, no.

5 Q. If there is testimony and
6 evidence that such battery replacement took
7 place in Cameron's facility in Houston, would
8 you have any basis to dispute that?

9 A. No, I wouldn't.

10 Q. If there is testimony that the
11 muck section was shipped back to Transocean
12 in June of 2008, would you have any basis to
13 dispute that?

14 A. No.

15 Q. Do you understand -- well, let
16 me ask it this way: Do you know if Cameron
17 has recommendations regarding the replacement
18 of batteries in a Deadman?

19 A. No, I don't.

20 Q. That's not something you looked
21 for in connection with your deposition
22 preparation?

23 A. No.

24 BP's expectation is that
25 Transocean and Cameron worked to whatever
1 schedule is required to keep batteries
2 maintained so that, when the -- you know,
3 when they're called on to do what they need
4 to do, that they're alive and charged and
5 ready to go.

Page 450:09 to 451:22

9 Q. (BY MR. JONES) Do you know how
10 Cameron makes engineering bulletins available
11 to customers?

12 A. No.

13 Q. BP is a customer of Cameron,
 14 correct?
 15 A. That's correct.
 16 Q. BP is a customer for subsea
 17 products, correct?
 18 A. That's correct.
 19 Q. BP is a customer for drilling
 20 products, correct?
 21 A. Correct.
 22 Q. I mean, BP bought the
 23 THUNDERHORSE blowout preventer from Cameron,
 24 correct?
 25 A. That's correct.
 1 Q. No middleman, no driller
 2 involved in there. BP bought the blowout
 3 preventer, correct?
 4 A. That's correct.
 5 Q. So they are a customer of
 6 drilling for Cameron, correct?
 7 A. That's correct.
 8 Q. Does BP have access to Cameron's
 9 TRANSACT system on its website?
 10 A. I don't know.
 11 Q. Do you know what the TRANSACT
 12 system is --
 13 A. No.
 14 Q. -- that Cameron offers?
 15 Do you know whether or not
 16 Cameron's recommendations regarding battery
 17 replacement were followed with respect to the
 18 blue pod SEM on the HORIZON?
 19 A. No, I do not.
 20 Q. Can you tell us what BP did to
 21 make sure that -- that Transocean followed
 22 OEM guidelines?

Page 451:24 to 452:01

24 A. Other than performance of the
 25 rig audits, that would be the only knowledge
 1 I have.

Page 452:12 to 453:04

12 Q. (BY MR. JONES) And so I take it
 13 then -- back, specifically, to HORIZON --

14 your understanding that the only thing BP
15 does to make sure that -- that maintenance
16 guidelines were being followed on HORIZON was
17 to do rig audits?

18 A. I think in my testimony
19 yesterday I also said that the well site
20 leaders discussed or did -- or worked with
21 the Transocean rig folks in keeping up with
22 maintenance that needed to be done. And I
23 think that we had agreed there was discussion
24 between the two. So there was -- there was
25 something that happened there.

1 Q. Okay. And -- and you would
2 expect that to take place, that your well
3 site leader would be involved in those
4 discussions, correct?

Page 453:06 to 453:11

6 A. I would say so, yes. But it
7 doesn't mean -- let me add something to that.
8 That doesn't mean that they -- they have
9 privy to every conversation. So I can't say
10 for certain that they were -- they were in
11 every conversation.

Page 453:15 to 453:20

15 Q. (BY MR. JONES) Are you able to
16 identify for me -- well, let me ask this: Is
17 it BP's position that it was Cameron's
18 obligation to maintain the batteries in the
19 SEMs on the DEEPWATER HORIZON blowout
20 preventer?

Page 453:22 to 455:11

22 A. That's -- that's my
23 understanding.

24 Q. (BY MR. JONES) Okay. What is
25 the basis of that understanding?

1 A. I believe you just said that you
2 had a contract with them to do that.

3 Q. I didn't say that.

4 A. Somewhere it said that.

5 Q. Okay. What is the basis of your

6 understanding that the -- it was Cameron's
7 obligation to maintain the batteries on the
8 DEEPWATER HORIZON SEMs?
9 A. I was told that by -- I don't
10 recall who told me -- it was in the DNV
11 report. I believe that's correct.
12 Q. All right. So the basis of your
13 understanding that Cameron had an obligation
14 to maintain the batteries is that someone
15 told you that there may be something in the
16 DNV report?
17 A. Or that it said that in the DNV
18 report, yes.
19 Q. Okay. Anything else?
20 A. Not that I recall, no.
21 Q. You have never seen a contract
22 requiring Cameron to maintain batteries on
23 the DEEPWATER HORIZON SEMs, correct?
24 A. I have not.
25 Q. You've never seen a purchase
1 order saying that Cameron had an obligation
2 to maintain batteries on the DEEPWATER
3 HORIZON, correct?
4 A. Not that I recall, no.
5 Q. You've never seen a single
6 document relating to any replacement of any
7 battery on the DEEPWATER HORIZON, correct?
8 A. Not that I recall.
9 Q. Prior to April 20th, 2010, do
10 you know if BP did anything to look at
11 battery maintenance on the DEEPWATER HORIZON?

Page 455:13 to 456:02

13 A. Nothing other than -- nothing
14 that I'm aware of other than what I've
15 discussed already.
16 Q. (BY MR. JONES) Okay. And --
17 and what you discussed already were rig
18 audits?
19 A. Rig audits and conversations
20 with well site representatives -- or well
21 site leaders.
22 Q. Are you able to identify for me
23 any specific rig audit that references the
24 fact that BP did anything to verify battery

25 maintenance on the HORIZON?

1 A. No. I can't reference a
2 specific document.

Page 458:09 to 460:02

9 Q. Sure. As BP's corporate
10 representative to testify regarding
11 modifications to the BOP by Cameron, alleged
12 in BP's cross-claim against Cameron, what
13 modifications are alleged?

14 A. The fact that the -- when the
15 inverted test ram was installed, the plumbing
16 was incorrectly done, which we discovered
17 during the response effort on Macondo. There
18 was a -- the tubing was not -- the tubing
19 that went to the ROV Halstead was incorrectly
20 plumbed.

21 Q. Okay.

22 A. The second was that the -- there
23 was no offering, early on, of any of -- any
24 options of other types of shear rams.

25 Q. It is your position, as BP's
1 company representative, that originally there
2 was no offering of any other type of shear
3 ram for the HORIZON?

4 A. Not that I'm aware of.

5 Q. Okay. What did you do to make
6 that -- to -- to -- to be able to make that
7 statement today?

8 THE VIDEOGRAPHER: You have five
9 minutes.

10 A. The meetings that I was in in
11 2000, 2001, I don't recall any of those
12 options offered. I've not seen any
13 documentation that says that was offered. So
14 that would be my conclusion.

15 Q. Okay. So you don't remember any
16 conversations from ten years ago --

17 A. No.

18 Q. -- where that was discussed?

19 A. No.

20 Q. And in your preparation for the
21 deposition, you didn't see any documents
22 discussing that?

23 A. That's correct.

24 Q. Did you look at the quotation
25 that was given for the HORIZON BOP?

1 A. No. I wasn't privy to that
2 information.

Page 460:09 to 461:04

9 Q. (BY MR. JONES) Okay. Mr. Byrd,
10 I had asked you about the modifications
11 alleged in BP's cross-claim against Cameron,
12 and the first was related to the conversion
13 of the test ram, and the second was that
14 Cameron didn't offer other rams at the time
15 the HORIZON was -- the HORIZON BOP was spec'd
16 and built, correct?

17 A. Yeah, I did say that, and I have
18 to say -- do have to say that the -- I can't
19 say for certain on the second issue because I
20 ultimately wasn't involved in all of those
21 decisions. So --

22 Q. Okay.

23 A. -- so I wanted to put that on
24 the record.

25 Q. Sitting here today as the
1 corporate representative of BP, is that
2 second issue, offering of other rams, an
3 issue about which BP is complaining?

4 A. Not at this time, no.

Page 462:01 to 464:14

1 Q. Okay. Other than the inverted
2 ram, any other modification that BP is
3 complaining about?

4 MR. COLLIER: Object to form.

5 Q. (BY MR. JONES) That Cameron was
6 involved in?

7 A. Not that I'm aware of.

8 Q. All right. Well, you're the --
9 you're the company here today to answer
10 questions about modifications alleged in the
11 cross-claim against Cameron. Anything else,
12 other than the modification to the test ram,
13 is BP complaining about?

14 A. Not that I'm aware of.

15 Q. Okay. Can you tell me what is

16 involved mechanically in converting the VBR
17 to a test ram?

18 A. I can't tell you the -- the
19 details of what bolts to take out, what --
20 you know, what the torque bolts do,
21 et cetera. The general knowledge I have is
22 that the -- the ram is -- is somehow switched
23 out so that it seals from a different
24 direction.

25 Q. Okay.

1 A. Which --

2 Q. Go ahead. Were you finished?

3 A. Which would, I assume, mean
4 opening the bonnets, changing the ram,
5 et cetera, and then retesting, so...

6 Q. Okay. The -- can you identify
7 for me anything that Cameron did incorrectly
8 with respect to the mechanical modification
9 of the VBR to a test ram?

10 MR. COLLIER: Object to form.

11 A. I don't know of anything other
12 than the hydraulic tubing issue.

13 Q. (BY MR. JONES) And the
14 hydraulic tubing issue has to do with -- I
15 believe, that it's the modification or the
16 ROV panel; is that correct?

17 A. It's the control lines that --
18 that go from the closing port on the rams to
19 the ROV panels, yes.

20 Q. Okay. And BP's cross-claim
21 against Cameron, there's an allegation that
22 "During the conversion of the lower pipe ram
23 to an inverted test ram, Cameron did not
24 modify the ROV intervention panel of the
25 DEEPWATER HORIZON BOP to allow ROV's to
1 operate the BOP's middle pipe ram instead of
2 the inverted test ram."

3 A. That's correct.

4 Q. Okay. That's what you're
5 talking about when you're talking about
6 the -- the -- the plumbing?

7 A. That's correct.

8 Q. All right. Let's set aside what
9 BP refers to as modifying the ROV
10 intervention panel, okay? The actual
11 conversion of the lower VBR to a test ram, is

12 there anything that you know, sitting here
13 today as BP's corporate rep, that Cameron did
14 incorrectly with respect to that work?

Page 464:16 to 465:08

16 A. I don't know.
17 Q. (BY MR. JONES) All right. Now
18 let's switch over to the modification to the
19 ROV panel.
20 Are you aware of any
21 documentation in which Cameron was asked to
22 modify the ROV intervention panel?
23 A. Not specifically, no.
24 Q. Okay. You've seen no contract
25 to that effect, correct?
1 A. No.
2 Q. You've seen no work order to
3 that effect, correct?
4 A. Not that I recall, no.
5 Q. Okay. What is the basis of BP's
6 apparent belief that Cameron had an
7 obligation to modify the ROV intervention
8 panel?

Page 465:10 to 465:15

10 A. Simply because if the design --
11 obviously the design was for the ROV
12 intervention panel to operate the lowest pipe
13 ram. When that pipe ram moved to the middle
14 pipe ram, that plumbing should have been
15 changed as well.

Page 465:18 to 466:06

18 As -- originally, as you
19 understand it, the ROV pipe ram close
20 function went to the lower cavity in the BOP
21 stack, correct?
22 A. I believe that's correct.
23 Q. And after the VBR was taken out,
24 inverted, and a test ram was put in, the ROV
25 panel still, as you understand it, was
1 plumbed to the lower cavity, correct?
2 A. That's, correct.

3 Q. All right. And so BP's basis
4 for saying that it was Cameron's obligation
5 to go modify the ROV panel is just simply
6 that they should have done it?

Page 466:08 to 466:11

8 A. BP's expectation would have been
9 that when the ram was changed out, that the
10 plumbing should have appropriately been
11 changed as well.

Page 466:23 to 467:04

23 Q. (BY MR. JONES) Sitting here
24 today as BP's corporate representative to
25 talk about BP's complaint against Cameron
1 regarding the modification of the test ram,
2 are you aware that BP sent an auditor to the
3 rig specifically to look at the modification
4 of the test ram?

Page 467:06 to 468:17

6 A. I'm not aware of that, no.
7 Q. (BY MR. JONES) That's not a
8 document that was provided to you in
9 connection with your deposition preparation?
10 A. It's not one I've seen.
11 Q. Were you aware of any other
12 plumbing changes that needed to be made with
13 the conversion of the lower VBR to a test
14 ram, besides the ROV intervention?
15 A. Not that I recall, no.
16 Q. Did you ever see any discussions
17 or documentation of discussions between
18 TransOcean and representatives of BP
19 discussing modifications to plumbing in
20 preparation for your deposition?
21 A. No, I did not.
22 Q. Did you ever see documentation
23 discussing conversations between BP and its
24 outside auditor retained to look at this
25 project discussing plumbing modifications?
1 A. No, I did not.
2 Q. Did you look at the Management

3 of Change documentations from Trans --
4 documentation from TransOcean regarding the
5 conversion of the lower VBR to a test ram in
6 preparation for your deposition?
7 A. Management of Change from
8 TransOcean?
9 Q. Yes, sir.
10 A. Created by TransOcean?
11 Q. Yes, sir.
12 A. No, I have not seen that.
13 Q. Did you look at the work list
14 for the tasks that were to be completed in
15 connection with the modification of the lower
16 VBR to a test ram?
17 A. No, I have not seen that.

Page 468:20 to 468:23

20 Do you know if BP tested the ROV
21 hot stab functions on the HORIZON stack after
22 the conversion of the lower VBR to a test
23 ram?

Page 468:25 to 469:19

25 A. I don't know.
1 Q. (BY MR. JONES) Do you know if
2 BP ever asked anyone else to test the hot
3 stab functions after the conversion?
4 A. Don't know.
5 Q. Do you know, regardless of
6 whether or not BP asked, did anybody test the
7 ROV hot stab functions after the conversion?
8 A. I don't know.
9 Q. Do you know whether or not
10 anybody ever tested the ROV hot stab
11 functions from the time of the conversion in
12 2004 prior to April of 2010?
13 A. I don't know.
14 Q. Do you know anything that BP did
15 to ensure that the ROV hot stab functions on
16 the DEEPWATER HORIZON were operating
17 correctly in the manner in which they wanted
18 them to operate after the conversion prior to
19 April of 2010?

Page 469:21 to 469:21

21 A. I don't know.

Page 469:25 to 470:05

25 Q. (BY MR. JONES) Today BP tests
1 ROV hot stab functions on the surface and
2 subsea, correct?
3 A. I believe that's correct, yes.
4 Q. Do you believe that's a good
5 idea?

Page 470:07 to 470:08

7 A. I believe we changed our
8 procedures to be in line with the NTL issue.

Page 470:11 to 470:15

11 Are you aware of whether or not
12 BP tested ROV hot stab functions on any of
13 its rigs, both on the surface and subsea,
14 prior to April 20, 2010?
15 A. I don't know.

Page 470:22 to 471:01

22 Q. Would you agree with me that if
23 you test ROV functions on the surface prior
24 to running a BOP, you will know what ram is
25 being operated by that BOP?
1 A. You should, yes.

Page 471:03 to 471:11

3 MR. JONES: I'm going to mark as
4 Exhibit 4111 --
5 (Marked Exhibit No. 4111.)
6 Q. (BY MR. JONES) It's Document 11
7 on the disk. This is a document bearing the
8 Bates -- starting with the Bates No.
9 BP-HZN-2179MDL014-90424. It's titled
10 "Preparation for Running BOP" for the
11 THUNDERHORSE. Is this a document that you've

Page 471:14 to 471:21

14 Q. If you look at the bottom, it
15 says: "First Issue Date: 29-March-2005."
16 Do you see that?
17 A. Yes, I do.
18 Q. And then it says the issue date
19 of this document is November 1st, 2006.
20 Do you see that?
21 A. Yes, I do.

Page 472:05 to 475:05

5 Q. If you look at Page 6 of 28 of
6 this document -- it's the document bearing
7 the Bates number ending in 429 --
8 A. Okay.
9 Q. -- there's a description of the
10 stack that's on THUNDERHORSE, correct?
11 A. Yes.
12 Q. And the second sentence, it
13 says: "The five ram-type preventers are
14 comprised of two double ram preventers, TL
15 BOP, 18 and three-quarter inch, 15K psi, and
16 one single shear ram preventer, TL BOP, 18
17 three-quarter inch, 15K psi, with tandem
18 boosters."
19 Do you see that?
20 A. Yes, I do.
21 Q. Were you involved in the
22 decision to put tandem boosters on the shear
23 rams on THUNDERHORSE?
24 A. No, I was not.
25 Q. Prior to April -- can we take it
1 from this document that, prior to April 20th,
2 2010, BP was aware of the possibility of
3 putting tandem -- tandem boosters on shear
4 rams?
5 A. It would appear so.
6 Q. And specifically, they were
7 aware of the possibility of putting tan --
8 tandem boosters on Cameron shear rams,
9 correct?
10 A. Yes, it would appear so.
11 Q. If you turn to the second-to-
12 the-last page, Page 27 of 28, the document

13 ending with the Bates number 450 --
14 A. Page 27?
15 Q. Yes, sir.
16 A. Okay.
17 Q. -- there's a Function Testing
18 Checklist Item list. Do you see that?
19 A. I do.
20 Q. And the very first function test
21 that's to be performed, according to this
22 document, on THUNDERHORSE, in preparation for
23 running the BOP, is what?
24 A. It says: "Perform stack
25 function tests and verify all functions
1 visually."
2 Q. And do you understand verify all
3 functions visibly -- or visually to mean you
4 look at what is being functioned? Is that
5 the way you would interpret that?
6 MR. COLLIER: Object to form.
7 A. I would agree that it says look
8 for visual indications. Visual -- there are
9 going to be different visual indications
10 on -- on different equipment.
11 Q. (BY MR. JONES) Okay. But to
12 make sure that -- you understand this to be
13 saying that, at least in this function test,
14 you need to get some form of visual
15 verification that the stack is functioning,
16 correctly?
17 A. That's, correct.
18 Q. All right. The fifth function
19 test that was to be performed in preparation
20 for running the BOP is to "Function-test ROV"
21 hot stabs -- or "ROV stabs," correct?
22 A. Correct.
23 Q. And so this would be a
24 document -- this document would indicate that
25 prior to April 20th, 2010, at least on the
1 rig where it owns the BOP, BP is saying you
2 need to function test your ROV stabs before
3 you run the BOP?
4 A. That's what it says in this
5 document.

7 Q. (BY MR. JONES) And sitting here
8 today, you don't know whether or not this
9 function test that is required for
10 THUNDERHORSE was done at any time after the
11 conversion of the test ram prior to April
12 20th, 2010, on HORIZON?

13 A. No, I don't know.

14 Q. Okay. And you don't know
15 whether or not BP demanded that, "This is the
16 procedure we use when we own the BOP. We
17 want you to do this on your rig"?

18 A. No, I don't know that.

19 Q. Are you aware, as BP's corporate
20 representative, of anybody ever telling
21 Cameron that Cameron was to modify the ROV
22 panel or make a change to ROV functions in
23 connection with the conversion of the lower
24 VBR to a test ram?

Page 476:08 to 477:09

8 A. I don't know if -- if someone
9 did or not.

10 Q. (BY MR. JONES) All right.
11 Returning back to Exhibit 4108, Topic 1, is
12 "The alternative BOP designs alleged in
13 Paragraph 56 of BP's cross-claim against
14 Cameron."

15 Do you see that?

16 A. I do.

17 Q. And Paragraph 56, I will
18 represent to you, states: "At the time the
19 DEEPWATER HORIZON BOP left Cameron's control,
20 the BOP was flawed in design and alternative
21 designs existed that did not have these
22 flaws." Okay?

23 A. Okay.

24 Q. What did you do to prepare to
25 give testimony on this topic?

1 A. I reviewed a document that had
2 some modeling and photographs of the pipe
3 that had been attempted to be sheared. And
4 that was it, that I can recall right now.

5 Q. Okay. So what is the flaw in
6 design that BP believes exists in the BOP --
7 well, first -- let's stop there. What is the

8 flaw and design that BP believes existed in
9 the BOP?

Page 477:11 to 478:11

11 A. When the shear rams were called
12 upon to shear the pipe that was in the hole,
13 they were unable to shear that pipe.
14 Q. (BY MR. JONES) All right.
15 What's the alternative design that existed
16 that did not have that flaw?
17 A. A design that would shear the
18 pipe.
19 Q. What is it?
20 A. I'm not a designer. I -- we
21 don't design that equipment.
22 Q. All right. Well, you are BP
23 today. BP has made the allegation that
24 alternative designs existed that did not have
25 the flaw that BP alleges.
1 Are you able to tell me any ram
2 design that did not have the flaw that BP
3 believes existed?
4 A. I believe that possibly the dual
5 shears --
6 Q. The dual shears?
7 A. Or the -- I'm sorry. Dual V's.
8 Q. The DVS?
9 A. Yes. The DVS would not have
10 that flaw. But not being a designer, I can't
11 say that for sure.

Page 479:01 to 481:04

1 Q. Are there any other ram designs
2 that BP believes did not have the flaw that
3 it claims existed in the HORIZON BOP?
4 A. Not that I'm aware of.
5 Q. Okay. You mentioned batteries.
6 Is that a flaw that BP believes exists in the
7 blowout preventer or existed in the blowout
8 preventer?
9 A. Yes.
10 Q. Okay. What design existed that
11 didn't have that flaw that BP believes
12 existed?

13 A. There are other systems that are
14 supplied by other manufactures that do not
15 rely on batteries. They rely on direct
16 hydraulic-type circuits in order to provide
17 the communication that would signal the
18 accumulators to fire the Deadman System. So,
19 it's the difference between a mechanical
20 system and an electrical system.

21 Q. Okay. You're referring to a
22 hydraulic -- that's generally called a
23 Hydraulic Deadman, correct?

24 A. Yes, that's correct. That's
25 correct.

1 Q. Did -- were Hydraulic Deadman
2 systems available in 2000, 2001?

3 A. Yes, they were.

4 Q. From who?

5 A. Shaffer.

6 Q. Anybody else?

7 A. I seem to recall that the
8 Enterprise actually had -- at that time had a
9 Hydraulic Deadman. I could be wrong, but I
10 believe that was correct.

11 Q. Did Cameron offer one?

12 A. No, they did not.

13 Q. Did Cameron subsequently offer
14 one?

15 A. I wouldn't know after that
16 period.

17 Q. Do you know if BP has a
18 Hydraulic Deadman System on any of the rigs
19 that it uses to drill wells in the Gulf of
20 Mexico?

21 A. The OCEAN CONFIDENCE had a
22 Hydraulic Deadman System when it was working
23 for us.

24 Q. Does THUNDERHORSE have a
25 Hydraulic Deadman on it?

1 A. I don't know.

2 Q. Prior to April 20th, 2010, BP
3 was unquestionably aware of the existence of
4 Hydraulic Deadman Systems, correct?

6 A. I can't state. I don't know

7 what BP as a company knew.
8 Q. (BY MR. JONES) What you knew,
9 correct?
10 A. Yes, I knew.
11 Q. And you worked for BP, correct?
12 A. Uh-huh.
13 Q. I believe you testified

Page 481:15 to 481:21

15 All right. Other than the
16 existence of Hydraulic Deadman Systems, any
17 other alternative design that -- are you
18 aware of any other alternative design that
19 existed to address the alleged flaw in having
20 batteries?
21 A. Not that I'm aware of.

Page 482:13 to 482:18

13 Q. Okay. But specifically sitting
14 here today as BP's corporate representative
15 to talk about alternative designs, you're not
16 able to identify for me any specific
17 alternative design that would give a warning
18 if an emergency system isn't operable?

Page 482:20 to 482:22

20 A. Not specifically, no. But then,
21 again, I don't have the total knowledge of
22 all the detail designs out there.

Page 485:02 to 485:07

2 MR. JONES: I'm going to mark as
3 Exhibit 4112 --
4 (Marked Exhibit No. 4112.)
5 MR. JONES: -- excerpts from the
6 "Drilling Contract" for the "RBS-8D
7 Semisubmersible Drilling Unit."

Page 485:23 to 491:04

23 Q. All right. And just for
24 clarity, RBS-8D was the name of the -- the

25 original name of the DEEPWATER HORIZON,
1 correct?

2 A. That's correct.

3 Q. And that's what it was referred
4 to at the time you were involved with the
5 original build-out, correct?

6 A. That's correct.

7 Q. You were asked yesterday some
8 questions about the exhibits to the back,
9 specifically the blowout prevention equipment
10 that's referenced in the back.

11 I would like first to direct
12 you to page -- what is the fourth page of the
13 document -- sorry, fifth page of the
14 document, which is Page 16 of 36 of the
15 original drilling contract.

16 You see Section 15.2 toward the
17 bottom?

18 A. Yes, I do.

19 Q. The second sentence of Section
20 15.2 says: "CONTRACTOR shall use the blowout
21 prevention equipment specified in Exhibit B
22 hereof on all strings of casing unless
23 otherwise directed by the COMPANY."

24 Do you see that?

25 A. No. I'm looking at -- you said
1 Section 15.2?

2 Q. Yes, sir, second sentence. It
3 says: "CONTRACTOR shall use the blowout
4 prevention equipment specified in Exhibit B
5 hereof on all strings of casing unless
6 otherwise directed by the COMPANY."

7 Do you see that?

8 A. Yes, I see that.

9 Q. Okay. Do you know if BP ever --
10 well, the company in this case is Vastar,
11 correct?

12 A. That's correct.

13 Q. And Vastar was subsequently
14 merged into or became part of BP, correct?

15 A. That's correct.

16 Q. Are you aware of whether or not
17 BP or Vastar ever directed the contractor in
18 this case, Transocean, to use any other
19 blowout prevention equipment other than that
20 specified in Exhibit B?

21 A. I'm not aware of any.
22 Q. If you turn to the -- two pages
23 back, which is the Bates page ending in 507,
24 you see Exhibit B-2, correct?
25 A. Yes, I see that.
1 Q. And this is the material and
2 equipment list, correct?
3 A. Yes.
4 Q. And as you go down there, about
5 two-thirds of the way, it says: "Section E -
6 Well Control/Subsea Equipment," correct?
7 A. Yes, I see that.
8 Q. And then if you turn to the
9 Bates page ending in 538 -- it's about five
10 pages later.
11 A. Okay.
12 Q. Page 32 of 64 of Exhibit B-2, it
13 lays out the -- well, actually the previous
14 page lays out the -- starts Section E with
15 the "Well Control/Subsea Equipment." Do you
16 see that towards the bottom?
17 A. Yes, I do.
18 Q. Okay. The ram type preventers,
19 which are referenced on page -- the next
20 page, 32 of 64, it says you're going to use
21 Cameron or equivalent rams on this BOP,
22 correct?
23 A. Yes, I see that.
24 Q. And it actually specifies the
25 model, does it not?
1 A. Yes, it does.
2 Q. And it specifies the bore size
3 and the working pressure as well?
4 A. Yes, it does.
5 Q. And then yesterday you were
6 asked -- toward the bottom of that page, this
7 contract actually specifies the stack
8 configuration, correct?
9 A. Yes, it does.
10 Q. Turning to the next page, 33 of
11 64, at the very bottom, you see that there's
12 a identification for annular type preventer
13 in the LMRP. Do you see that?
14 A. Yes, I do.
15 Q. And again, it is actually a
16 specific make and type of Cameron annular

17 preventer that's being specified in this
18 contract by Vastar, correct?
19 A. Correct.
20 Q. If you turn to Page 37 of 64 --
21 A. Okay.
22 Q. -- two-thirds of the way down
23 the page, you see the identification of the
24 BOP control system that's supposed to be used
25 on the HORIZON. Do you see that?
1 A. Yes, I do.
2 Q. And it says that this is a
3 "Cameron or equivalent Mux system...." Do
4 you see that?
5 A. Yes.
6 Q. With "2 each remote control
7 panels"; and it says where they're going to
8 be located, correct?
9 A. Correct.
10 Q. It says that one is going to be
11 located in the driller's house and one in the
12 control room, correct?
13 A. Correct.
14 Q. Okay. So, this is BP or, in
15 this case, Vastar at the time saying this is
16 where we want the control panels located,
17 correct?
18 A. Correct.
19 Q. If you turn to Page 39 of 64, a
20 third of the way down or a quarter of the way
21 down, Section E.11.1, there is a discussion
22 of the hose reels. Do you see that?
23 A. Yes, I do.
24 Q. And it says there's -- first
25 there's going to be two BOP control reels,
1 Mux cables. Do you see that?
2 A. Correct.
3 Q. And can you tell us where BP
4 wanted those Mux hose reels located?

Page 491:06 to 491:11

6 A. I wasn't involved in those
7 conversations.
8 Q. (BY MR. JONES) All right.
9 Well, where does this contract say that BP
10 wants those Mux cables to be, reels to be

11 located?

Page 491:13 to 492:02

13 A. I have not read the entire
14 contract; so I wouldn't know whether it does
15 or doesn't address that.
16 Q. (BY MR. JONES) All right.
17 Well, let's -- you see where it says
18 "Quantity," right?
19 A. Right.
20 Q. It says: "no: 2 BOP Control
21 (MUX)." Do you see that?
22 A. Yes, I do.
23 Q. And then right under that, it
24 says "Location."
25 A. I see it, yes.
1 Q. Where does BP say it wants to
2 put these Mux reels?

Page 492:04 to 492:19

4 A. The document says "Moonpool."
5 Q. (BY MR. JONES) In the Moonpool.
6 All right. Then if you go down, it also says
7 there's going to be a hotline.
8 Do you see that?
9 A. I see that.
10 Q. A hotline is a hydraulic line,
11 correct?
12 A. That's correct.
13 Q. And there's a reel for the
14 hotline that -- that spools out as the BOP
15 goes down, correct?
16 A. That's correct.
17 Q. Where is BP saying in this
18 contract that it wants to put that hotline
19 reel?

Page 492:21 to 493:09

21 A. The contract says "Moonpool."
22 Q. (BY MR. JONES) Going down to
23 Section E-12, do you see that?
24 A. Yes.
25 Q. It says -- there's -- there's a

1 line there for Acoustic Emergency BOP
2 Control -- it looks like "System" but cut
3 off.
4 Do you see that?
5 A. Yes, I see that.
6 Q. And -- and this is saying
7 that -- in this contract, BP is saying: We
8 don't want an Acoustic Emergency BOP Control
9 System, correct?

Page 493:11 to 493:24

11 A. Now say that again, please.
12 Q. (BY MR. JONES) In this list of
13 equipment, it is saying: We don't want to
14 have an acoustic emergency BOP control
15 system, correct?
16 A. It says "N/A."
17 Q. N/A generally means "not
18 applicable," correct?
19 A. Correct.
20 Q. Now, once the equipment was
21 specified in the drilling contract, BP -- was
22 it not? -- was involved in the design process
23 all the way from initial meetings in 1999
24 through to commissioning in 2001.

Page 494:01 to 496:23

1 A. Can you define "involved"?
2 Q. (BY MR. JONES) Well, did BP
3 have any involvement -- and let me say this:
4 When I say BP in this con -- context, can we
5 agree that I'm talking about both Vastar and
6 BP?
7 A. Yeah.
8 Q. Okay. Do you understand that BP
9 had involvement in the design process
10 starting in 1999 all the way through
11 commission?
12 A. What I can say is that we
13 generally provided input and set
14 requirements. We were not involved in
15 detailed calculations, anything like that.
16 Q. Okay. You -- you personally
17 were involved in that process, correct?

18 A. Yes, I was.
19 Q. Let me -- I'll mark as Exhibit
20 4113 --
21 (Marked Exhibit No. 4113.)
22 Q. (BY MR. JONES) -- some meeting
23 minutes dated June 23, 1999. This is
24 Document 17 on the disk. Have you seen this
25 document before?
1 A. I believe I have, yes.
2 Q. This document reflects a meeting
3 that -- progress meeting that took place in
4 June of 1999, and it lists various attendees
5 for RBF and Cameron. Do you see that?
6 A. Yes, I do.
7 Q. RBF is RB Falcon?
8 A. Yes.
9 Q. Which was a predecessor to
10 what's now Transocean?
11 A. That's correct.
12 Q. All right. And -- and listed
13 among those attendees is you?
14 A. Yes.
15 Q. But you weren't working for RBF
16 at the time, correct?
17 A. That is correct.
18 Q. You were working for Manatee as
19 a consultant for Vastar?
20 A. That's correct.
21 Q. Anybody else, under RBF in that
22 list, that was working for Vastar either
23 directly or as a consultant?
24 A. Robert Taylor was a consultant.
25 Q. Did he work for Manatee or
1 someone else?
2 A. Someone else.
3 Q. For whom did he work?
4 A. I'm not sure.
5 Q. So, Mr. Wink, Mr. Cotton, and
6 Mr. Rogers were all R&B Falcon people?
7 A. I believe that's correct, yes.
8 Q. What was Mr. Taylor's specialty?
9 A. BOP expert and control system
10 expert.
11 Q. Okay. So he was another
12 consultant that Vastar brought in to be
13 involved in -- in the buildout, correct?

14 A. Yes. Yeah, Mr. Taylor was an
15 industry-recognized consultant many, many
16 years of experience with BOPs and control
17 systems.

18 Q. All right. And -- and Vastar,
19 at the time, felt that it was appropriate to
20 have Mr. Taylor involved in this process to
21 bring expertise to make sure that the BOP was
22 being spec'ed out and built the way they
23 wanted it to be built, correct?

Page 496:25 to 497:21

25 A. That's correct.

1 Q. (BY MR. JONES) All right. Now,
2 the first topic that's identified in this
3 document says: "Mike Byrd wants a hydraulic
4 schematic within a couple of days."

5 Correct?

6 A. It does say that, yes.

7 Q. And the hydraulic schematic
8 that's being referenced here is -- is this
9 the stack flow diagram?

10 A. I don't recall which hydraulic
11 schematic that was referring to.

12 Q. Okay. Is that the type of
13 information that you would request throughout
14 this process?

15 A. Yes.

16 Q. Okay. Did you request
17 information on accumulator sizes?

18 A. I'm going to tell you right now,
19 my son had passed away two months before
20 this. So I'm not going to remember a lot
21 about what I asked for.

Page 497:25 to 498:17

25 Q. Okay. Let me just talk
1 generally about this process because this is
2 1999. I've seen documents that continue
3 on --

4 A. Certainly.

5 Q. -- into the 2000 time period.
6 Do you recall, sitting here
7 today, discussing issues such as accumulator

8 sizing with representatives of R&B Falcon and
9 Cameron?
10 A. Yes, I do.
11 Q. Do you recall discussing issues
12 such as the stack layout with representatives
13 of R&B Falcon and Cameron?
14 A. Yes, I do.
15 Q. And do you request [sic]
16 discussing issues related to working
17 pressures with R&B Falcon and Cameron?

Page 498:19 to 498:24

19 A. Yes, I do.
20 Q. (BY MR. JONES) Okay. So is --
21 is it fair to say that -- that you discussed
22 many, many issues regarding the design and
23 layout of the HORIZON BOP with
24 representatives of Transocean and Cameron?

Page 499:01 to 499:11

1 A. I mean, there were a number of
2 issues that we discussed.
3 Q. (BY MR. JONES) And were meeting
4 minutes like this, to your knowledge,
5 prepared during this process, identifying the
6 issues that are being discussed?
7 A. Yes. They were prepared. I
8 don't know if every single meeting had
9 meeting minutes.
10 Q. But many did?
11 A. Obviously, some did.

Page 501:01 to 501:04

1 Q. Now, the Deadman System and the
2 sequence for the Deadman, that was something
3 that BP was very much involved in during the
4 design and build of the HORIZON BOP, correct?

Page 501:06 to 501:16

6 A. I mean, all I can say is that I
7 don't know -- when you say "heavy
8 involvement" or -- we set the requirements

9 and we would review information on it -- on
10 the Deadman System.
11 Q. (BY MR. JONES) Okay. You --
12 BP -- or Vastar, then BP, set the
13 requirements for the Deadman System, and then
14 continued to be involved in the process to
15 make sure that what was being delivered met
16 those requirements, correct?

Page 501:18 to 502:16

18 A. In general, I would say that's
19 correct.
20 Q. (BY MR. JONES) All right. And
21 you personally were involved in that process,
22 correct?
23 A. At varying levels, yes. Varying
24 levels of involvement, yes.
25 Q. I'm going to mark as Exhibit
1 4114 --
2 (Marked Exhibit No. 4114.)
3 Q. (BY MR. JONES) -- Document 18
4 on the disk. This is the technical position
5 paper, Revision No. 5, for the EDS/DMS
6 disconnect philosophy. Yesterday you were
7 shown an earlier revision of this document
8 and I just wanted to mark Revision 5 for the
9 record. This is the document -- well, first,
10 looking at the last page, is that your
11 signature on the last page?
12 A. As the document preparer, yes.
13 Q. Okay. And this is the document
14 that reflected BP's philosophy for what they
15 wanted the Deadman and the EDS to do,
16 correct?

Page 502:18 to 504:23

18 A. According to the signatures, it
19 would -- it was approved by Vastar and
20 Transocean.
21 Q. (BY MR. JONES) Okay. Drafted
22 by Vastar and reviewed by Mr. Wink on behalf
23 of the DEEPWATER HORIZON rig manager and
24 Mr. Weisinger on behalf of Vastar, correct?
25 A. Correct.

1 Q. All right. If we look at the
2 second page of this document, page bearing --
3 ending in Bates No. 743, there is a
4 discussion of the Deadman System DMS. Do you
5 see that?
6 A. Yes, I do. The -- where it says
7 "Attachment file"?
8 Q. Yes, sir.
9 A. Okay.
10 Q. The last sentence in that first
11 paragraph says that: "The overall
12 reliability philosophy of the DMS is to
13 provide reliability through simplicity."
14 Do you see that?
15 A. Yes, I see that.
16 Q. That -- that's what you wrote
17 into this document as the -- as the overall
18 reliability philosophy. Do you see that
19 that's correct?
20 A. That is correct.
21 Q. And it says: "This means that
22 fewer -- that the fewer decisions the system
23 has to make, the more reliable it will be in
24 executing its preprogrammed logic."
25 Do you see that?
1 A. Yes, I see that.
2 Q. And that was something you also
3 wrote and -- and believed to be the
4 philosophy of Vastar, correct?
5 A. That is correct.
6 Q. And then it lays out that the
7 Deadman System is going to "...activate upon
8 loss of all of the following:"
9 Do you see that?
10 A. Yes, I do.
11 Q. And it says: "Communication
12 between the pods; power and signal from the
13 MUX cables; and hydraulic pressure from the
14 rigid conduit."
15 Do you see that?
16 A. Yes, I do.
17 Q. And -- and -- all -- "all" is in
18 all caps in this document, correct?
19 A. That's correct.
20 Q. And so, you know, Vastar's
21 philosophy for the Deadman was to say: It is

22 going to activate upon all of those
23 conditions, correct?

Page 504:25 to 505:23

25 A. That's my understanding.
1 Q. (BY MR. JONES) The next
2 sentence says: "The D -- the DMS will close
3 only the SBRs using the dedicated shear
4 bottle circuit."
5 You see that?
6 A. I see that.
7 Q. It goes on to say that: "The
8 casing shears will not be closed due to
9 the -- due to accumulator volumetric
10 constraints."
11 Do you see that?
12 A. I see that.
13 Q. And it says: "This should cover
14 approximately 95 to 97 percent of all
15 drilling activities."
16 Right?
17 A. It does say that.
18 Q. Okay. So you would agree with
19 me that the possibility of having the casing
20 shears close in the Deadman sequence was
21 something that was discussed in connection
22 with the design and buildout of the HORIZON
23 stack?

Page 505:25 to 506:20

25 A. It was discussed. We were
1 advised by Cameron that it wasn't
2 sufficient -- I think "real estate" is how
3 they referred to it -- to add additional
4 bottles.
5 Q. (BY MR. JONES) Okay. And --
6 and it's your understanding, then, that it
7 was the accumulator volumetric constraint
8 that was driving the decision on whether or
9 not you could close the casing shears before
10 the blind shear rams in a Deadman sequence?
11 A. To the best of my recollection,
12 yes.
13 Q. Okay. You do realize that the

14 Deadman sequence files -- fires off the
15 stack-mounted accumulators, correct?
16 A. I didn't recall that.
17 Q. All right. Well, do you have
18 any reason to dispute that today?
19 A. No. I don't -- I don't have any
20 reason to dispute that, no.

Page 507:24 to 507:25

24 Q. (BY MR. JONES) I'm going to
25 mark as Exhibit 4115 some handwritten notes.

Page 508:03 to 510:06

3 These are some handwritten notes
4 on A Vastar notepad regarding DMS with "EDS"
5 crossed out. Do you see that?
6 A. I see that, yes.
7 Q. Are these notes that you have
8 seen before?
9 A. Yes, I have.
10 Q. Is that your handwriting?
11 A. No, it's not.
12 Q. Okay. When did you see these
13 notes?
14 A. During preparation.
15 Q. All right. These notes reflect,
16 don't they, that you have the -- left-hand
17 side says: "Casing rams close; then BSRs."
18 Do you see that?
19 A. I see that.
20 Q. And the right-hand side says
21 you're going to close the blind shear rams
22 only, correct?
23 A. Yes.
24 Q. And it lays out the pros and
25 cons of both of those setups, correct?
1 A. It does lay out, yes, that's
2 what it says.
3 Q. And the first pro under closing
4 the casing shear rams first and then closing
5 the blind shear rams is: "Non damage BSR
6 seal."
7 Do you see that?
8 A. I see that.

9 Q. Do you recall discussions that,
10 if you close the casing shear rams first, you
11 are less likely to damage the blind shear
12 ram's sealing capability?

13 A. I don't recall that.

14 Q. Do you know that to be the case?

15 A. I don't know for certain that
16 would be the case.

17 Q. Do you know generally that
18 that's the case?

19 A. In theory, it should be the
20 case.

21 Q. All right. Whose notes are
22 these, do you know?

23 A. I have no idea.

24 Q. If you look over to the
25 right-hand side of the -- the -- the sequence
1 for closing only the blind shear rams, the
2 first con that is listed is that, if you
3 close only the blind shear rams, there is no
4 guarantee non damage blind shear ram seal.
5 Do you see that?

6 A. It does say that, yes.

Page 510:19 to 511:04

19 Q. Okay. You recognize this,
20 though, as a document that was put together
21 back at the time the HORIZON stack was being
22 designed and configured, correct?

23 A. I don't know when this document
24 was created. There's no date. There's no
25 name.

1 Q. Okay. Well, do you recall
2 discussions along these lines during your
3 involvement with the process?

4 A. Vaguely, yes.

Page 511:08 to 511:16

8 Q. All right. Regardless of what
9 the discussions were, you do know that at the
10 end of the day, as reflected in your design
11 philosophy, the decision was made: We are
12 only going to close the blind shear rams in
13 the Deadman sequence, correct?

14 A. I believe that's what it says.
15 Q. All right. And that was BP's
16 design philosophy, correct?

Page 511:18 to 511:20

18 A. That was the -- call it
19 "collective wisdom" of BP and Transocean or
20 Vastar at the time.

Page 512:04 to 512:07

4 Q. (BY MR. JONES) All right.
5 Mr. Byrd, I have marked as Exhibit 4116 a
6 document beginning with the Bates number
7 TRN-HCJ-00026738.

Page 512:10 to 512:12

10 It is a spreadsheet or a table titled "Vastar
11 Resources, Inc., Technical Position Papers -
12 DEEPWATER HORIZON."

Page 513:01 to 514:17

1 Q. All right. This document lists
2 out -- it has "Description of system or
3 Equipment" in the first column; and then it
4 has "Prepared By, various individuals in the
5 second column"; then it has various dates
6 completed, the project manager approval.
7 Do you see those?
8 A. Yes, I do.
9 Q. Okay. Yesterday I believe you
10 mentioned that the only technical position
11 paper that you recall preparing was the one
12 related to the EDS and the Deadman. I look
13 on the second page, and it looks like you
14 were at least partially involved in preparing
15 a -- a position paper for the wellhead
16 connector. Do you recall doing that?
17 A. I don't recall doing it.
18 Q. Okay. And it also -- on the --
19 I thought there was one more. Yeah. The --
20 now the EDS -- oh. The BOP pressure
21 temperature sensors, do you recall doing a

22 position paper for Vastar on the P.T.
23 censors?
24 A. No, I don't.
25 Q. Who is -- going back to the
1 first page, who is Mr. Welch?
2 A. Dan Welch was a Vastar employee.
3 He was a -- what BP would call a well site
4 leader. He was essentially Mr. Weisinger's
5 secondhand man, so to speak.
6 Q. Okay. Who was Wayne Cole?
7 A. Wayne Cole was a -- a consultant
8 on general rig construction, rig facilities-
9 type equipment.
10 Q. Was he a Vastar employee?
11 A. No. He was a consultant.
12 Q. But a consultant for Vastar?
13 A. That's correct.
14 Q. Who is Jay Hohmann,
15 H-O-H-M-A-N-N, on the second page.
16 A. It's John Hohmann. John was a
17 Manatee employee.

Page 514:22 to 515:02

22 Q. Got it. Who is -- well, was
23 Mr. Hohmann consulting for Vastar or
24 assisting you in the consulting for Vastar?
25 A. Yes. But he was -- we were
1 actually transitioning me out and
2 transitioning John in.

Page 515:20 to 515:22

20 Q. Who was Dick Metcalf?
21 A. Dick was another Manatee
22 employee.

Page 517:09 to 517:12

9 Q. Are you able to tell me who with
10 Vastar or BP was involved in the decision to
11 use SBR rams as opposed to DVS rams in the
12 HORIZON stack?

Page 517:14 to 517:15

14 A. I can't say for certain who
15 would have ultimately made that decision, no.

Page 520:02 to 520:05

2 Q. Let me show you what -- I'll
3 show you Appendix H to the BP accident
4 investigation report.
5 A. Okay.

Page 520:14 to 520:18

14 Q. Appendix H discusses the
15 description of the BOP stack and control
16 system for the DEEPWATER HORIZON.
17 Do you see that?
18 A. Yes, I do.

Page 522:10 to 523:01

10 Q. All right. Now, two paragraphs
11 down, there's a single-sentence paragraph
12 that says: "The testing required by API
13 standards for BOP components and gate valves
14 was static testing as opposed to dynamic
15 testing; i.e., simulating a well flow
16 condition." Do you see that?
17 A. I do.
18 Q. That's a correct statement, is
19 it not?
20 A. I believe that to be correct.
21 Q. In fact, I think you said that
22 yesterday during your deposition that testing
23 under API for blowout preventers is done
24 under static conditions, not flowing
25 conditions?
1 A. I believe I did say that, yes.

Page 523:06 to 523:08

6 Q. Is that something that you
7 understood prior to April 20th, 2010?
8 A. Yes.

Page 523:17 to 523:20

17 Q. (BY MR. JONES) Mr. Byrd, to
18 your knowledge, has BP ever performed a shear
19 test on the DEEPWATER HORIZON cutting drill
20 pipe with the blind shear rams?

Page 523:22 to 524:07

22 A. I can't say that for sure.
23 Q. (BY MR. JONES) Do you, sitting
24 here today, have any knowledge of BP ever
25 performing a shear test on the DEEPWATER
1 HORIZON with the blind shear rams?
2 A. Not that I recall.
3 Q. Are you aware, sitting here
4 today, that BP ever did a shear test on drill
5 pipe on the DEEPWATER HORIZON with the casing
6 shear rams?
7 A. I wouldn't know.

Page 525:03 to 525:05

3 Q. Hello, Mr. Byrd. My name is
4 Janika Polk and this is my colleague,
5 Terrance Prout, and we represent Anadarko.

Page 530:15 to 530:18

15 Q. So you can't speak to whether,
16 prior to the blowout, BP sought to be in
17 compliance with recognized codes and
18 standards?

Page 530:21 to 531:07

21 A. Because we didn't own -- in
22 general, other than the THUNDERHORSE, we
23 didn't own the BOPs. They were owned by the
24 drilling contractor. Our expectation would
25 have been that the drilling contractor would
1 be within the requirements of whatever
2 regulatory or industry standards that were
3 there.
4 Q. So other than those
5 expectations, BP took no independent action
6 to confirm compliance; is that -- is that
7 your testimony here today?

Page 531:09 to 531:15

9 A. No, it's not.
10 Q. Okay.
11 A. There were a number of audits
12 performed. I can't speak to the totality of
13 those audits, but those audits were around
14 ensuring that the equipment was fit for
15 purpose.

Page 536:10 to 537:01

10 Q. Mr. Byrd, did you have any
11 contact with MOEX or any MOEX entity in
12 connection with any -- in connection with the
13 Macondo Well?
14 A. Not that I'm aware of, no.
15 Q. Okay. And do you know what role
16 the -- any MOEX entity played in connection
17 with the MOEX -- with the Macondo Well?
18 A. No, I do not.
19 Q. Okay. And I take it in
20 connection with the preparation for your
21 testimony to testify as to the 30(b)(6)
22 items, that you had -- you did not have
23 any -- you did not learn any information
24 about MOEX's role in connection with the
25 Macondo Well; is that correct?
1 A. That's correct.

Page 537:12 to 537:17

12 Q. Good afternoon, Mr. Byrd. My
13 name is Paul Collier. I'll be asking you
14 questions today on behalf of BP.
15 I'd like to hand you a document
16 that I'll mark as Deposition Exhibit 4119.
17 (Marked Exhibit No. 4119.)

Page 538:04 to 538:18

4 Q. And what is deposition Exhibit
5 4119?
6 A. Appears to be meeting minutes
7 from 25 August 1999.

8 Q. And the header on the document
9 says "Cameron Controls."
10 Do you see that?
11 A. It does.
12 Q. Does that indicate to you this
13 was prepared by Cameron?
14 A. Yes.
15 Q. And if you look at the
16 attendees, you -- it shows that you -- your
17 name appears on that?
18 A. Yes, it does.

Page 539:18 to 539:21

18 Q. Who was designing the blowout
19 preventer for the DEEPWATER PRES -- DEEPWATER
20 HORIZON?
21 A. Cameron.

Page 539:23 to 540:20

23 Q. (BY MR. COLLIER) What was the
24 role of R&B Falcon with respect to the design
25 of the DEEPWATER HORIZON blowout preventer?
1 MR. BAAY: Object to form.
2 A. I understood it -- the way I
3 understand it would be that R&B Falcon was
4 the rig owner and subcontracted Cameron to
5 provide the BOP and the control systems.
6 Q. (BY MR. COLLIER) I'd like to --
7 like to draw your attention to the -- the
8 second topic. And it reads: "R&B Falcon
9 informed Cameron of their decision of
10 requiring only one DMS Sequence (with SBR's)
11 and two EDS Sequences with DP Mode and Casing
12 Mode."
13 Did I read that correctly?
14 A. Yes, you did.
15 Q. And what does that mean to you?
16 A. That means that there was -- it
17 appears that that means there was a final
18 decision on what the Deadman System and the
19 EDS sequence was going to be.
20 Q. And who made that decision?

Page 540:22 to 541:03

22 A. It appears to be R&B Falcon.
23 Q. (BY MR. COLLIER) And R&B Falcon
24 is the predecessor to TransOcean; is that
25 your understanding?
1 A. Yes, it is.
2 Q. Would Cameron have had any input
3 regarding the AMF Deadman sequence?

Page 541:05 to 541:09

5 A. They could have, yes.
6 Q. (BY MR. COLLIER) And if Cameron
7 would have had any safety concerns with
8 respect to the DMS sequence, would Cameron
9 have been able to have voiced those concerns?

Page 541:11 to 541:17

11 A. Yes, they could have.
12 Q. (BY MR. COLLIER) And do you
13 recall in your time with Vastar -- or with
14 Manatee at this point in time on behalf of
15 Vastar, Cameron raising any safety concerns
16 with respect to the DMS sequence for the
17 DEEPWATER HORIZON BOP?

Page 541:19 to 541:19

19 A. No, I do not.

Page 542:04 to 543:10

4 Q. And Deposition Exhibit 4109 was
5 the -- the document that you brought with you
6 today regarding one of the deposition notice
7 topics; is that correct?
8 A. That's correct.
9 Q. And the first sentence on the
10 document under the heading reads: "BP's use
11 of Cameron's subsea BOP's in Gulf of Mexico
12 deepwater wells (other than Macondo) during
13 the period April 20, 2005 - April 20, 2010."
14 Do you see that?
15 A. Yes, I do.
16 Q. And does this indicate that the

17 information provided on this sheet is --
18 reflects the time period between April 20,
19 2005, and April 20, 2010?
20 A. Yes. What it would appear, yes.
21 Q. The column all the way to the
22 right on the chart reads: "Use of Secondary
23 Intervention/Control Systems."
24 Do you see that?
25 A. Yes, I do.
1 Q. And does that column indicate
2 use of secondary intervention/control systems
3 during the period April 20, 2005, to
4 April 20, 2010? Is that your understanding?
5 A. That's my understanding, yes.
6 Q. If one of these rigs had used a
7 secondary intervention prior to that date,
8 would it -- is it correct to say that it
9 would not be reflected on this sheet?
10 A. That's correct.

Page 543:13 to 546:03

13 If you could pick up the --
14 another document you saw earlier in your
15 deposition, which is Appendix H to the BP
16 internal investigation report.
17 A. Yes, sir.
18 Q. And I'd like to turn your
19 attention to the last page on this section,
20 which has the heading, "Applicable" --
21 "Applicable BP Standards." Do you see that?
22 A. Yes.
23 Q. Okay. It's the page -- Page
24 No. 234. Is that the page you're on?
25 A. Oh, yes. Okay.
1 Q. And you see the table on that
2 page?
3 A. Yes, I do.
4 Q. The column all the way to the
5 right reads "DEEPWATER HORIZON BOP Stack
6 Configuration."
7 Do you see that?
8 A. Yes, I do.
9 Q. And I'd like to draw your
10 attention to the second row under that
11 heading. And the first sentence reads:

12 "Sealing shear ram BSR was included in the
13 stack."
14 Did I read that correctly?
15 A. Yes, you did.
16 Q. And the next sentence reads:
17 "The BSR capability was verified in the yard
18 during rig commissioning when five, half-inch
19 21.9 PVF pipe was sheared at 2900 psi."
20 Did I read that correctly?
21 A. Yes, you did.
22 Q. And what does that statement
23 mean to you?
24 A. That says to me that at applying
25 2900 psi to the closing side of the blind
1 shear, it was able to shear the -- the pipe
2 mentioned.
3 Q. And does that indicate to you
4 that the DEEPWATER HORIZON BOP had conducted
5 physical shear ram tests on the blind shear
6 rams?
7 A. Yes, it does.
8 Q. The next sentence in that same
9 box reads: "The BSR also successfully
10 sheared six and five-eighths inch drill pipe
11 when an EDS function was executed in June
12 2003"?
13 A. Yes, it does.
14 Q. And what does that in -- what
15 does that statement inform you about?
16 A. That there was a similar test
17 with six and five-eighths drill pipe was --
18 successfully was sheared.
19 Q. And it identifies that as being
20 an EDS function, correct?
21 A. Yes, it does.
22 Q. And that was before the date of
23 April 20, 2005; is that right?
24 A. Yes, it would be.
25 Q. And so that's the reason it
1 doesn't show up on Exhibit 4109; is that your
2 understanding?
3 A. That's correct.

Page 546:07 to 547:12

7 Q. (BY MR. COLLIER) Mr. Byrd, let

8 me hand you a document that was previously
9 used in your deposition as Deposition Exhibit
10 4112. And I'd like to draw your attention to
11 a page that you were referenced by one of the
12 counsel earlier today, and it's the page with
13 the last three digits 545.

14 And actually before you turn to
15 that page, Deposition Exhibit 4112 -- it's
16 your understanding, this is the drilling
17 contract between Vastar and R&B Falcon,
18 correct?

19 A. Yes, it is.

20 Q. And Vastar was a predecessor to
21 BP; is that your understanding?

22 A. Yes.

23 Q. And R&B Falcon was a predecessor
24 to TransOcean; is that your understanding?

25 A. Correct.

1 Q. Okay. And I'd like to draw your
2 attention to the page that reads -- the last
3 three digits, 545.

4 A. Okay.

5 Q. And do you recall being asked
6 questions on this page about the location of
7 the MUX control cables?

8 A. Yes, I do.

9 Q. And do you recall being asked
10 questions about the location for those MUX
11 control cables running through the moonpool?

12 A. Yes, I do.

Page 547:16 to 547:19

16 Q. (BY MR. COLLIER) Would Cameron
17 and TransOcean have known that the MUX
18 control cables for the DEEPWATER HORIZON BOP
19 would have been running through the moonpool?

Page 547:21 to 548:14

21 A. I would expect they would, yes.

22 Q. (BY MR. COLLIER) And this
23 contract is a contract with TransOcean's
24 predecessor, correct?

25 A. Yes.

1 Q. And so they would have had this

2 specification, correct?
3 A. Yes.
4 Q. And Cameron -- would they have
5 been on board the DEEPWATER HORIZON when the
6 BOP was incorporated into the rig?
7 A. I wasn't there and can't say for
8 certain, but it is -- it is customary when
9 equipment is installed, that there is a
10 representative for the OEM there.
11 Q. Would TransOcean and Cameron
12 have had the opportunity for input as to
13 where the MUX control cables would run to
14 connect to the BOP when subsea?

Page 548:16 to 548:20

16 A. Yes.
17 Q. (BY MR. COLLIER) Would
18 TransOcean and Cameron have had the ability
19 to provide input as to whether or not to run
20 the MUX cables through the moonpool?

Page 548:22 to 549:03

22 A. Yes.
23 Q. (BY MR. COLLIER) If Cameron and
24 TransOcean would have perceived any safety
25 concerns with running the MUX control cables
1 through the moonpool, TransOcean and Cameron
2 would have had the opportunity to raise those
3 concerns?

Page 549:06 to 549:12

6 A. Yes, they would.
7 Q. (BY MR. COLLIER) Were you aware
8 of Cameron and TransOcean raising any concerns
9 about running the MUX control cables through
10 the moonpool?
11 A. I'm not aware of any concerns
12 that were raised.

Page 549:14 to 549:17

14 Q. (BY MR. COLLIER) Now during the
15 design process for the DEEPWATER HORIZON BOP,

16 who had the expertise regarding the DEEPWATER
17 HORIZON BOP design?

Page 549:19 to 550:19

19 A. The most experienced person, in
20 my opinion, on the project with BOP's would
21 have been Mr. Taylor, who I believe I
22 mentioned in previous testimony.

23 Q. (BY MR. COLLIER) And who --
24 what was the --

25 A. Excuse me. Let me -- let me
1 back up for just a second.

2 That would have been the most
3 experienced person on the Vastar side. I
4 would expect that the -- Cameron would
5 ultimately have had the most experience with
6 the BOP systems.

7 Q. (BY MR. COLLIER) Would Cameron
8 have had the most expertise relating to the
9 design of the DEEPWATER HORIZON BOP?

10 A. That would be my expectation.

11 Q. Now I think you've said earlier
12 that BP or Vastar at that time set certain
13 functional requirements for the DEEPWATER
14 HORIZON BOP?

15 A. That's correct.

16 Q. Would BP or Vastar at that time
17 have relied on the expertise of Cameron and
18 TransOcean to meet those functional
19 requirements?

Page 550:21 to 551:02

21 A. Yes.

22 Q. (BY MR. COLLIER) If Cameron had
23 indicated to BP during the DEEPWATER HORIZON
24 BOP design process that the blind shear rams
25 should use a flat shearing blade, would that
1 have been something that BP would have
2 disputed or objected to?

Page 551:04 to 551:09

4 A. We would have looked at it.

5 Q. (BY MR. COLLIER) Would BP have

6 had any reason to object or -- or would have
7 had any reason to object to Cameron's
8 recommendation of a --
9 A. No. Not that I'm aware of, no.

Page 551:22 to 551:23

22 Q. Mr. Byrd, my name is Jimmy
23 Williamson. I've got a few follow-up

Page 553:14 to 553:17

14 Q. (BY MR. WILLIAMSON) Okay. And,
15 of course, what we do know is that the
16 blowout preventer on the Macondo did not seal
17 the well on April 20th, 2010?

Page 553:20 to 554:12

20 A. As I understand it, yes.
21 Q. And we know that the well
22 continued to flow until approximately
23 July 15th, July 16th, 2010, correct?
24 A. That's correct.
25 Q. Now we know there were several
1 attempts to close the blowout preventer and
2 stop flow after the original explosion and
3 fire?
4 A. That's correct.
5 Q. Okay. Over the next several
6 days, through ROV intervention and its other
7 efforts, there was attempts made to activate
8 the blowout preventer, hoping to stop the
9 flow, correct?
10 A. Correct.
11 Q. All of those failed, correct?
12 A. Yes.

Page 554:25 to 555:02

25 Q. -- your testimony is you have no
1 idea why this BOP failed to seal that well?
2 A. I don't know.

Page 555:04 to 555:20

4 Q. (BY MR. WILLIAMSON) And you
5 haven't looked into it, asked about it, or
6 inquired about it?
7 A. I did not review the
8 investigation report, no.
9 Q. Okay. Do you remember yesterday
10 we actually started off, I asked you a few
11 questions about regulatory requirements that
12 you have to have for subsurface BOP's when
13 you're drilling in the Gulf of Mexico?
14 A. I recall, yes.
15 Q. Okay. Does BP -- and you're
16 here to talk about the suitability of this
17 BP -- this blowout preventer, correct?
18 A. Uh-huh.
19 Q. Does BP consider the legal
20 requirements part of suitability?

Page 555:22 to 555:25

22 A. Yes.
23 Q. (BY MR. WILLIAMSON) Okay. Then
24 why don't you know about them?
25 A. Because I don't.

Page 557:01 to 557:05

1 this blowout preventer in -- how did BP know
2 TransOcean had this blowout preventer in
3 regulatory compliance?
4 A. We would have, in part, used the
5 audits.

Page 558:19 to 558:24

19 Q. What does BP do to make sure
20 that Transocean keeps its blowout preventer
21 in regulatory compliance? You mentioned the
22 audits. Anything else that you know of?
23 A. Nothing that I'm aware of other
24 than the audits.

Page 561:25 to 562:06

25 Q. Having said that, other than
1 these four, BP looks to pressure,

2 temperature, water depth, and previous shear
3 test. Have I got the four criteria that you
4 looked at to determine suitability?

5 A. That is what I looked at during
6 preparation.

Page 562:19 to 563:16

19 Q. Do you know Kevin Davies?
20 A. I do not know Kevin Davies.
21 Q. Do you know what Mr. Davies did
22 on this particular well in terms of the audit
23 of September, 2009?
24 A. I recall seeing his name on an
25 audit. I don't recall which one.
1 Q. Okay. Do you recall that
2 Mr. Davies recommended that the DEEPWATER
3 HORIZON come out of service because of
4 maintenance issues in September, '09? Did
5 you know that?
6 A. I don't recall that.
7 Q. Do you recall that Mr. Wong,
8 head of BP Audit, recommended that the
9 DEEPWATER HORIZON come out of service for
10 maintenance issues in September, '09?
11 A. I wasn't aware of that.
12 Q. Were you aware that Mr. John
13 Guide and Brett Cocalles refused to discuss
14 that issue with Norman Wong? Were you aware
15 of that?
16 A. No, I wasn't aware of that.

Page 563:18 to 563:22

18 Q. (BY MR. WILLIAMSON) Were you
19 aware that Brett Cocalles refused the BP Audit
20 team permission to go back on the DEEPWATER
21 HORIZON for further audit work in September,
22 2009? Were you aware of that?

Page 563:24 to 564:05

24 A. I was not aware of that.
25 Q. (BY MR. WILLIAMSON) Okay. Were
1 you aware that Norman Wong actually wrote
2 Harry Thierens, Ian Little, and David Sims

3 talking about the fact that the DEEPWATER
4 HORIZON needed 3800 hours of maintenance in
5 September, '09? Were you aware of that?

Page 564:07 to 564:11

7 A. I was not aware of that.
8 Q. (BY MR. WILLIAMSON) Were you
9 aware part of that maintenance was related to
10 the blowout preventer?
11 A. No, I wasn't.

Page 564:13 to 564:20

13 Q. (BY MR. WILLIAMSON) Okay. And
14 were you aware that after Mr. Wong's letter
15 and after Mr. Davies' audit and after BP
16 Audit wrote Mr. Guide's boss and Mr. Cocalles'
17 boss that John Guide put the DEEPWATER
18 HORIZON back in service five days later?
19 Were you aware of that?
20 A. I was not.

Page 569:09 to 569:14

9 Q. It's my understanding that the
10 basis for your evaluation that the blowout
11 preventer was suitable was that you compared
12 Macondo to Tiber, a well that the DEEPWATER
13 HORIZON had previously drilled.
14 A. That was one of the things.

Page 569:16 to 570:01

16 A. When I say "one of the things,"
17 I mean that was one of the issues that we
18 looked at regarding pressure and temperature.
19 Q. Sure. Tell me what -- okay.
20 One thing you looked at is Tiber -- I'm going
21 to come to that in a moment -- for pressure,
22 temperature, and water depth.
23 What else did you do to look at
24 the issue of whether pressure and temperature
25 and water depth made this BOP suitable?
1 A. The --

Page 570:03 to 571:08

3 A. I was advised that the -- the
4 process that they used for calculating the
5 mud line or the wellhead pressure, which is
6 the absolute pressure that the BOP would see
7 internally and how the temperature was
8 calculated.
9 Q. (BY MR. WILLIAMSON) Okay. So,
10 you were given a process over how they
11 calculated wellhead pressure?
12 A. Yes, sir.
13 Q. And you were given a process
14 over how they calculated temperature?
15 A. That's correct.
16 Q. And then knowing those processes
17 and knowing Tiber, that was the basis of your
18 comparison?
19 A. They also gave me the results of
20 those calculations.
21 Q. Okay. So, you have the process
22 of looking at how they calculate wellhead
23 pressure and temperature. You looked at the
24 results of those calculations for, I assume,
25 both Macondo and Tiber?
1 A. Just Macondo.
2 Q. Just Macondo?
3 A. Uh-huh.
4 Q. Okay. And then once you looked
5 at the result -- the calculations and the
6 results on Macondo, you determined it was
7 less onerous than Tiber, correct?
8 A. To my understanding, yes.

Page 571:10 to 571:24

10 Q. (BY MR. WILLIAMSON) And then
11 you reached the conclusion, upon looking at
12 this process of pressure and temperature
13 calculation and looking at the results of the
14 pressure and temperature calculation -- and
15 you compared those to Tiber, and you
16 concluded that this particular BOP was
17 suitable based upon the pressure and
18 temperature and water depth criteria?
19 A. That it was suitable for

20 pressure and temperature.
21 Q. Okay. Did I kind of outline
22 your process correctly with respect to
23 pressure, temperature, and water depth?
24 A. I believe that's correct.

Page 575:13 to 578:10

13 Q. Let's take temperature first.
14 What did you arrive at for Macondo for
15 temperature?
16 A. I believe it was somewhere
17 around 150 to 180 degrees F, is what I
18 recall.
19 Q. In other words, that's what you
20 should see at the BOP?
21 A. That's correct.
22 Q. Fahrenheit, I assume?
23 A. Yes, Fahrenheit.
24 Q. The --
25 A. Now, let me -- let me -- can I
1 add something? That that would be at the
2 wellhead. As you did go further up the BOP,
3 it would get -- it would cool.
4 Q. Yeah, be at the bottom of the
5 BOP stack. So, theoretically -- or not
6 theoretically, as a practical matter since
7 the BOP is approximately five stories tall,
8 there will be some cooling effect --
9 A. Right.
10 Q. -- by the time you get to the --
11 A. Exactly right.
12 Q. Okay. All right. And then you
13 compared that to what was seen on the Tiber?
14 A. I was advised that that was less
15 than what was on Tiber.
16 Q. Do you know what's on Tiber?
17 A. No, I don't recall.
18 Q. But you were advised it was less
19 than what was on Tiber; therefore, this
20 particular BOP unit should be good to go in
21 terms of temperature?
22 A. In terms of temperature, yes.
23 Q. All right. Let's go to pressure
24 next. What were you advised the pressure
25 was?

1 A. The pressure calculations are
2 essentially the same. They take the bottom
3 hole pressure reading; and then through the
4 gradient that they calculate, they come up
5 with a mud line pressure, or the absolute --
6 what we call the absolute pressure that the
7 BOP sees internally.
8 Q. And what did you come up with on
9 the Macondo?
10 A. I believe they said it was
11 somewhere around 7,000 psi.
12 Q. Okay. All right. And how did
13 that com -- and then you compared that. You
14 didn't do the calculations yourself. You
15 relied upon Mr. Bowles and Mr. Skelton, as I
16 understand it --
17 A. Correct.
18 Q. -- to give you the 7,000 psi?
19 A. Correct.
20 Q. And that's Macondo?
21 A. That's correct.
22 Q. And then you compared that to
23 Tiber or compared that to what they told you
24 for Tiber?
25 A. That's correct.
1 Q. What was Tiber?
2 A. I believe it was somewhere eight
3 to 9,000 psi.
4 Q. Okay. And then based on that,
5 based upon your comparing the pressure --
6 after the appropriate calculations, you
7 compared the pressure on Macondo to Tiber and
8 you compared the temperature on Macondo to
9 Tiber; and with respect to those two
10 criteria, you decided this BOP was suitable.

Page 578:12 to 581:07

12 A. Based on that, there was nothing
13 I would see that would make the BOP
14 unsuitable.
15 Q. (BY MR. WILLIAMSON) Did you
16 look at the BOP testing program on Tiber?
17 A. No, I did not.
18 Q. Did you look how many times the
19 BOPs were cycled on Tiber?

20 A. No, I did not.
21 Q. Did you look to see whether
22 there was ever an emergency activation system
23 on Tiber?
24 A. No, I did not.
25 Q. Was the auto shear act -- ever
1 activated on Tiber?
2 A. I don't know.
3 Q. Was the AMF ever activated on
4 Tiber?
5 A. I don't know.
6 Q. Was the EDS-1 ever activated on
7 Tiber?
8 A. I don't know.
9 Q. Was the EDS-2 ever activated on
10 Tiber?
11 A. I don't know.
12 Q. Was the high-pressure blind
13 shear ram function ever activated on Tiber?
14 A. I don't know.
15 Q. Okay. Were the blind shear rams
16 ever actually called upon to do any shearing
17 on Tiber?
18 A. I don't know.
19 Q. Okay. Were the VBRs ever
20 actually called upon to have any kick -- kick
21 containment on Tiber?
22 A. I don't know.
23 Q. Okay. And were there any ROV
24 Hot Stabs used on Tiber on the BOP?
25 A. The stabs were there. I don't
1 know if they were used or not.
2 Q. That's what I was asking.
3 A. Yeah.
4 Q. Did you ever actually use ROV
5 Hot Stabs on Tiber in order to close the BOP?
6 A. I don't know.
7 Q. So we don't know how the blind
8 shear rams would have acted in an emergency
9 situation on Tiber, because you don't know
10 that it ever happened?
11 A. I would say that's correct.
12 Q. Therefore -- and that's the sole
13 basis on which you decided this particular
14 BOP could meet pressure and temperature, the
15 information and calculations and processes

16 you were given regarding the Tiber well?
 17 A. That's correct.
 18 Q. Okay. Next we'll go to
 19 "Previous Shear Test."
 20 A. Okay.
 21 Q. Okay. On "Previous Shear
 22 Test" -- please refresh my memory. I thought
 23 I heard you say that you had referred to one
 24 test that had been done when Cameron tested
 25 the BOP before it was actually delivered to
 1 the rig. Did I remember that correctly?
 2 A. I believe that's correct, yes.
 3 Q. And I don't know if it's, what,
 4 2000?
 5 A. 2000, 2001.
 6 Q. Right.
 7 A. Somewhere thereabouts.

Page 581:10 to 582:02

10 Did you rely upon any other
 11 shear test as you were determining the
 12 suitability of this particular BOP?
 13 A. Not that I'm aware of, no.
 14 Q. That's it. One shear test,
 15 right?
 16 A. That's correct.
 17 Q. And that particular shear test
 18 was not done subsea, correct?
 19 A. Correct.
 20 Q. That particular shear test was
 21 not done under dynamic flow conditions,
 22 correct?
 23 A. That's correct.
 24 Q. That particular shear test was
 25 not done under pressure, under a pressurized
 1 wellbore, correct?
 2 A. That's correct.

Page 583:09 to 583:13

9 Q. Okay. And I believe you
 10 actually said the amount of pressure that it
 11 took to shear that particular pipe at burr,
 12 at ambient, centered, no dynamic flow, and no
 13 wellbore pressure was about 2900 psi.

Page 583:15 to 583:16

15 A. To the best of my recollection,
16 that sounds about right.

Page 584:02 to 585:06

2 Q. What is an appropriate margin of
3 error where BP says, Well, we don't want
4 to -- I'll give you an example. If I told
5 you it would -- that it would -- that it's
6 2900 psi, would you want some margin? Say,
7 Gee, I bet it's not going to be that every
8 time. It may be a little more or a little
9 less or some amount more or some amount less
10 if you run a hundred tests. Would you agree
11 with that?
12 A. Repeat the question, please.
13 Q. Okay. Assume with me we're
14 going to shear a 5 and a half-inch S 135
15 drill pipe --
16 A. Right.
17 Q. -- a thousand times.
18 A. Okay.
19 Q. Is it always going to be the
20 exact same number in terms of force needed to
21 shear the pipe at sea level?
22 A. That would require me
23 speculating on the -- I don't know.
24 Q. Okay. So the follow-up question
25 to that is: You have no earthly idea whether
1 the correct margin of error is 1 psi or a
2 thousand psi with respect to shearing 5 and a
3 half-inch S 135 drill pipe?
4 A. I would feel quite certain there
5 is some margin of error. I just don't know
6 what it is.

Page 589:02 to 590:09

2 Q. You talked about the MUX cables
3 running through the moon pool, correct?
4 A. That's correct.
5 Q. It's my understanding -- what
6 you've told me is: You knew the MUX cables

7 were running through the moon pool, correct?
8 A. That's correct.
9 Q. Vastar knew the MUX cables were
10 running through the moon pool?
11 A. That's correct.
12 Q. BP -- and I guess BP, when they
13 accepted the rig, they would have known the
14 MUX cables were running through the moon
15 pool, wouldn't they?
16 A. That's correct.
17 Q. Cameron knew the MUX cables were
18 running through the moon pool?
19 A. That's correct.
20 Q. Transocean and R&B Falcon knew
21 the MUX cables were running through the moon
22 pool?
23 A. That's correct.
24 Q. Okay. Who raised their hands
25 and saying, You know, let's do a risk
1 analysis on whether that presents a danger?
2 Who did that?
3 A. I don't know if one was done or
4 that was recommended or not.
5 Q. Okay. As you sit here today
6 speaking for BP, can you see a risk of
7 running the MUX cables, your sole control to
8 the blowout preventer in the rig, through the
9 moon pool?

Page 590:11 to 590:22

11 A. There is a level of risk in
12 every single operation.
13 Q. (BY MR. WILLIAMSON) I don't
14 want to know every single operation; I want
15 to know about this operation. I want to
16 know: Can you, the engineer who was sitting
17 in these meetings in 2000 and who works for
18 BP today and who is BP's voice today, can you
19 see a risk on running your sole electrical
20 contact with the blowout preventer through
21 the moon pool? You see that risk or you
22 don't?

Page 590:24 to 591:01

24 A. I would say that there's always
25 some level of risk going through the moon
1 pool for any piece of equipment.

Page 592:21 to 593:18

21 Q. Okay. And the only place you
22 can conceive of the MUX cables being is at
23 the top of the riser and the moon pool?

24 A. Well, somewhere in the moon
25 pool.

1 Q. The -- and you never analyzed
2 whether there's -- whether there's an
3 alternative to that?

4 A. Not that I recall, no.

5 Q. Okay. So this presents some
6 level of risk, but to your knowledge, BP has
7 never tried to quantify that risk or develop
8 an alternative plan for MUX cable location?

9 A. That's to my knowledge, but of
10 course, I don't have the -- the entire
11 knowledge of everything that was done, so...

12 Q. You're my BP guy today so I'm
13 only asking you: To your knowledge, that's
14 never been quantified or alternatives have
15 never been thought about that you --

16 A. I can't say.

17 Q. -- that you know of?

18 A. Not that I know of.

Page 594:20 to 595:18

20 Q. Okay. And what was said about
21 acoustic systems in 2000 when somebody was
22 deciding what needed to be done on this rig?

23 A. I recall that it was certainly
24 represented to us that -- the backup system,
25 the EDS -- I'm sorry, the DMS, Deadman
1 System -- that Cameron had was the most
2 reliable system that they felt like -- or
3 they felt like was the most reliable system.

4 Q. Okay. What was said about
5 acoustic systems?

6 A. The -- one of the gentleman that
7 we had who was a BP expert did not feel at
8 that time that there was sufficient

9 reliability in the acoustic systems that
10 was -- so that -- well, that the system that
11 we had would be more reliable than the
12 acoustic system, because he did not yet feel
13 comfortable with the technology because of
14 the water depths. And I think he said
15 something about thermal clines and inclines
16 and acoustic signals getting through layers
17 of cold water. I don't really understand all
18 that but....

Page 596:06 to 596:12

6 Q. All right. Do you know what
7 work BP ever did to go back and say, Hey,
8 let's look at acoustic systems and see if
9 they're the best available technology? Do
10 you know of any work that BP, to your
11 knowledge, ever did on that after 2000?
12 A. Not to my knowledge.

Page 596:16 to 596:25

16 Q. By the way, is -- do I
17 understand correctly that BP is running
18 Cameron blowout preventers on other rigs
19 around the world?
20 A. That's correct.
21 Q. Not only in the Gulf of Mexico
22 but in other places in the world, right?
23 A. I believe so.
24 Q. Okay. Why is BP doing that if
25 the Cameron blowout preventer is defective?

Page 597:02 to 597:08

2 A. I think in my earlier testimony
3 you may recall that I said we had a stand
4 down after the Macondo incident and inspected
5 the -- the BOP systems that we had -- not
6 just Cameron's but all of our rigs -- to
7 assure ourselves that we -- we felt
8 comfortable working with those systems.

Page 599:12 to 599:15

12 Q. Are you aware that BP was the
13 entity making decision whether the
14 elastomeric elements would be changed or not?
15 A. No, I wasn't.

Page 604:14 to 604:16

14 Q. Okay. Exhibit 757, the risk
15 register, at the top, doesn't it say
16 "Macondo"?

Page 604:18 to 604:21

18 Q. Okay. So this is the risk
19 register for Macondo, correct, apparently
20 updated June 20th, 2009?
21 A. That's what it says.

Page 605:21 to 605:23

21 Q. And what is the risk of the BOP?
22 A. It says: "Potential for the BOP
23 stack to cause NPT on the well."

Page 606:01 to 606:04

1 Q. Okay. That's not the only risk
2 of a blowout preventer on a drilling
3 exploratory well, is it?
4 A. No, it's not.

Page 606:11 to 606:14

11 Q. (BY MR WILLIAMSON) Well, common
12 sense tells us that the biggest risk of a
13 blowout preventer is it will fail to work in
14 an emergency situation, correct?

Page 606:16 to 607:02

16 A. I would agree with that, yeah.
17 Q. (BY MR. WILLIAMSON) Okay. Is
18 the failure to work in an emergency situation
19 even listed as a risk in connection with the
20 blowout preventer on BP's risk register?
21 A. I don't see it listed, but that

22 does not mean it would not have been listed
23 at one time. In the process of processing
24 these documents over time, as items are
25 resolved, they're sometimes dropped off the
1 list. So I can't -- I can't really say it
2 was never addressed.

Page 607:13 to 607:21

13 BP has not in any way analyzed
14 how big that risk is in this document, their
15 risk register, have they?
16 A. I can't say that, no.
17 Q. Well, they haven't done it on
18 this document, have they?
19 A. Well, like I said, their -- I
20 don't know that this is the totality of the
21 document.

Page 608:01 to 608:04

1 to look at this document. And according to
2 this document, BP has not even analyzed the
3 risk that the blowout preventer won't work,
4 have they?

Page 608:06 to 608:07

6 A. I can see that it's not listed
7 on here but --

Page 608:09 to 608:22

9 A. -- I couldn't say that they have
10 not analyzed it.
11 Q. And they have not analyzed the
12 consequence of the blowout preventer not
13 working in an emergency situation, have they?
14 A. I can't draw that conclusion
15 from here, either.
16 Q. Wouldn't you agree that it's a
17 lot more important whether the blowout
18 preventer is going to work in an emergency
19 situation than whether or not the blowout
20 preventer is going to cause non-productive
21 time?

22 A. Yes, I would.

Page 610:21 to 611:12

21 Q. The risk that the blowout
22 preventer will not complete its mission when
23 activated should be on the risk register for
24 Macondo?

25 A. I would say it would be on a
1 risk register.

2 Q. Right. And once it's on the
3 risk register, we should figure out how
4 important it is, what the consequence is, and
5 kind of analyze the chance of it happening?

6 A. That's the typical process for
7 risk assessment.

8 Q. And you, as you sit here today,
9 the person who is to determine whether the
10 BOP on this well was suitable, have no idea
11 whether that took place or not?

12 A. No, I don't.

Page 615:08 to 615:16

8 Q. Do you see No. 4 on 4.8 where it
9 says "damaged MUX cable, loss of one cable"?

10 A. Yes, I do.

11 Q. Did this report ever talk about
12 damage to MUX cables, loss of two cables?

13 A. I don't know.

14 Q. Seems like to me that would be a
15 lot more important than loss of one cable,
16 right?

Page 615:18 to 616:04

18 Q. (BY MR. WILLIAMSON) If you lose
19 two cables, you lose 100 percent of your
20 controls. Whereas, if you lose one cable, at
21 least, as a practical matter, you should
22 still have control, correct?

23 A. I would agree losing both is
24 worse than losing one.

25 Q. Sure. So an analysis of how
1 reliable and safe this system should be
2 should be addressing what happens if you lose

3 both MUX cables, correct?
4 A. I would agree.

Page 617:08 to 618:03

8 can't secure the well? What if the well is
9 out of control as a result of the loss of the
10 blind shear ram? Is that failure scenario
11 dealt with in this risk analysis?
12 A. I don't see it on this page, but
13 I haven't -- again, I don't know if it's in
14 the -- in the documents somewhere.
15 Q. Fair enough. It should be
16 somewhere in here, shouldn't it, because
17 that's certainly a risk in connection with
18 the blind shear ram?
19 A. I'm just saying I don't know if
20 it is or not.
21 Q. I know. I'm saying it should
22 be.
23 A. It could be, yes.
24 Q. Okay. Well, it should be. It
25 is a known risk that you will have a loss of
1 the blind shear ram, and you will not be able
2 to secure the well, right?
3 A. I would agree with that.

Page 618:22 to 619:01

22 Q. So, this particular report has
23 concluded that, in connection with the
24 Cameron blowout preventer, there are no very
25 high risk recommendations?
1 A. That's what this says.

Page 625:13 to 625:18

13 Q. All right. My only point is
14 it's a known focus point at this point in
15 time. Somebody somewhere has reported that
16 Cameron blind shear rams have failed wellbore
17 pressures; and they've reported it as early
18 as March, 2001, correct?

Page 625:20 to 625:20

20 A. According to West, yes.

Page 626:23 to 627:04

23 Q. This is a document that's been
24 marked Exhibit 4120.

25 A. Okay.

1 Q. Have you ever seen this document
2 before?

3 A. I do not recall seeing this
4 document.

Page 627:16 to 627:19

16 Q. All right. I'd like to ask you
17 some questions about this particular
18 document.

19 A. Okay.

Page 627:21 to 628:25

21 Did you know that they were
22 going to be doing a risk assessment? A
23 document they would call the "Risk Assessment
24 of the DEEPWATER HORIZON Blowout Preventer"?

25 A. I had understood that this was
1 going to be performed, yes.

2 Q. Okay. Let's look at the
3 introduction.

4 A. Okay.

5 Q. "Cameron Controls is developing
6 and building a blowout preventer control
7 system under contract to R&B Falcon
8 Drilling."

9 See that sentence?

10 A. Yes, I do.

11 Q. And it fits with your memory and
12 knowledge, doesn't it?

13 A. Yes, it does.

14 Q. Okay. "The BOP is designed for
15 deepwater drilling operations up to 10,000
16 feet below sea level to be installed on the
17 DEEPWATER HORIZON. EQE was contracted by
18 Cameron to conduct a risk assessment of the
19 BOP system. The risk assessment was
20 developed to identify any reliability

21 concerns and rank the contributors to system
22 unavailability based upon their likelihood of
23 occurrence."

24 Right?

25 A. That's what it says, yes.

Page 629:07 to 632:11

7 Q. Okay. The -- since I have
8 limited time, I'll see if I can go through --
9 first, we'll turn to Page 9, please. And
10 under the "Risk Assessment" --

11 A. The Page 2.2, "Assumptions"?

12 Q. Yes.

13 A. Okay.

14 Q. 3.2, "Assumptions."

15 A. Yes.

16 Q. Okay. Down at the bottom, No.

17 1: "EDS failure is defined as: Failure to
18 close blind shear ram or failure to close the
19 casing shear when casing is in the hole or
20 failure to disconnect riser or failure to
21 open the upper annular or failure to isolate
22 choke or failure to isolate kill."

23 Correct?

24 A. That's correct.

25 Q. "Well control failure is defined
1 as failure to seal using the blind shear ram
2 or any one of the three pipe rams or failure
3 to open any applicable choke or kill paths or
4 failure to close the upper and lower
5 annular."

6 Did I read that correctly?

7 A. Yes, you did.

8 Q. Okay. So this report confirms
9 what you told me a while ago: One of the
10 risks of the blowout preventer is that they
11 will failure -- there will be a failure to
12 seal using the blind shear ram in a well
13 control event?

14 A. Yes.

15 Q. Okay. Next page: "The casing
16 shear" -- top of the page: "The casing shear
17 ram is not considered to be a redundancy to
18 the blind seal ram due to its inability to
19 seal the well in."

20 You agree with that?
21 A. Yes.
22 Q. Okay.
23 A. Let me clarify that. I would
24 agree that it's not redundant from a sealing
25 standpoint; it can be redundant from a
1 shearing standpoint.
2 Q. Okay. Next, go to page 13.
3 A. Okay.
4 Q. "Common Cause Events," have you
5 ever heard that phraseology before in doing
6 risk assessment failure analysis?
7 A. I'm not familiar with that term,
8 no.
9 Q. Okay. It says: This was used
10 as the beta factor, which, when multiplied by
11 the individual component failure rate,
12 estimated the likelihood of two similar
13 components to fail due to a common cause.
14 A. Okay.
15 Q. Okay. Then it says: Based --
16 the last sentence. So start on this page, go
17 to the next page. "Based" -- quote: "Based
18 on experience gained in the nuclear power
19 industry, common cause failures of more than
20 two components actually have occurred and
21 have resulted in a significant contribution
22 to overall unavailability."
23 Did I read it correctly?
24 A. Yes, you did.
25 Q. Is it true?
1 A. I have no idea.
2 Q. Okay. Well, Cameron's report
3 that Cameron contracted and apparently gave
4 to Transocean and BP says that you can
5 have -- it is a known fact that you can have
6 two components fail and be a significant
7 factor towards blowout preventer
8 unavailability.
9 A. Okay.
10 Q. Is that what that report says?
11 A. That's what the sentence says.

Page 632:13 to 633:06

13 Q. (BY MR. WILLIAMSON) All right.

14 Now, turn to Page 37. This is the
15 "Evaluation Results" of this report, right?
16 A. Yes.
17 Q. Okay. "The major" -- last
18 paragraph on that page.
19 A. Okay.
20 Q. "The major contributor to the
21 failure likelihood associated with the BOP
22 control system results from the selected
23 stack configuration. With only one shear ram
24 capable of sealing the well in, it is
25 extremely difficult to remove all the single
1 failure points from the control system."
2 Did I read that correctly?
3 A. Yes, you did.
4 Q. And it's true? The blind shear
5 ram is a single-point failure in this system,
6 isn't it?

Page 633:08 to 634:07

8 A. I can't say that, not having
9 part of the analysis.
10 Q. (BY MR. WILLIAMSON) Okay. You
11 don't remember that part?
12 A. Well, I didn't take part in this
13 analysis.
14 Q. I know. But I'm asking about
15 the blowout preventer stack configuration.
16 A. Uh-huh.
17 Q. The EDS works the blind shear
18 ram?
19 A. That's correct.
20 Q. The high pressure blind shear
21 ram function works the blind shear rams?
22 A. I believe that's correct, yes.
23 Q. Okay. The auto shear works the
24 blind shear rams?
25 A. I believe that's correct, yes.
1 Q. Okay. Every emergency
2 activation system operates the blind shear
3 rams?
4 A. Yes, it does.
5 Q. So the blind shear rams operate,
6 in an engineering sense, as a single-point
7 failure, just like this report says, right?

Page 634:09 to 635:22

9 A. I still couldn't say that that's
10 a single-point failure.
11 Q. Okay. If the blind shear rams
12 fail -- let me see if I can answer this
13 question: If the blind shear rams on the
14 DEEPWATER HORIZON blowout preventer failed,
15 what other emergency activation system is
16 available?
17 A. I can't recall if the casing
18 rams were....
19 Q. Casing rams won't seal.
20 A. No. No, you're right. They
21 won't seal.
22 Q. Okay. I want to sever and seal.
23 What emergency activation system on this
24 blowout preventer does that other than the
25 blind shear rams?
1 A. That is the only component that
2 will sever and seal.
3 Q. And Cameron knew it in 2000,
4 right, according to this report?
5 A. According to this report.
6 Q. BP knew it in 2000, according to
7 this report?
8 A. Assuming they saw the report,
9 yes.
10 Q. Transocean knew in 2000?
11 A. Assuming they saw the report,
12 yes.
13 Q. And of course, their
14 predecessors, R&B Falcon and Vastar?
15 A. Right.
16 Q. Right?
17 A. Correct.
18 Q. And then on the next page, Page
19 39, of this report....
20 A. Next page would be 38, I think.
21 Q. I apologize. I'm on Page 39.
22 You're right, I was on 37.

Page 636:03 to 636:15

3 Q. Paragraph above: "As noted

4 above, due to the selected stack
5 configuration, the final shuttle valve, which
6 supplies the blind shear ram, represents a
7 single failure point and accounts for 56
8 percent of the failure likelihood of the
9 system to perform an EDS."
10 I read that correctly?
11 A. Yes, you did.
12 Q. So somebody, in 2000, realized
13 that the weak link in this system, as
14 configured and designed, is the blind shear
15 ram system?

Page 636:19 to 636:24

19 A. That's what this says.
20 I would like to add that, while
21 it does say that, I would ask you to note on
22 the previous page that it appears that the
23 probability of occurrence is approximately
24 two times ten to the minus fourth.

Page 638:07 to 638:18

7 Q. Right.
8 A. My only point is that the
9 frequency of any occurrence of a failure has
10 to be taken into account as part of the
11 decision-making factors.
12 Q. Okay. What level of failure
13 leading to a disaster like Macondo cost 11
14 lives, caused a bunch of injuries, lost a
15 \$500 million rig, and put 100,000 barrels of
16 oil -- or 70- or 80- or 100,000 barrels of
17 oil a day in the Gulf of Mexico -- what
18 failure rate is acceptable to BP?

Page 638:20 to 638:23

20 A. BP doesn't -- this kind of
21 failure would be classified as a very high --
22 it would classify it as a low probability --
23 I'd say a low probability/high impact --

Page 638:25 to 639:12

25 A. -- risk. It -- you really would
1 not get to a point where you wouldn't deal
2 with it somehow.
3 Q. Right. You should deal with
4 this in terms of planning?
5 A. Correct.
6 Q. The consequence of failure is so
7 high --
8 A. Yes.
9 Q. -- that, even though the
10 probability of failure may not be very high,
11 you got to plan for it?
12 A. BP --

Page 639:14 to 639:17

14 A. -- does not accept that there --
15 or does not take the position there is an
16 acceptable statistical probability or it's
17 acceptable for someone to lose their life.

Page 639:25 to 640:07

25 but I would assume also the environmental
1 damage deponent alone is unacceptable?
2 A. That's correct.
3 Q. Therefore, you have to plan for
4 this problem?
5 A. That's correct. There are any
6 number of ways, of course, that you can plan
7 for this.