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UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF LOUISIANA

IN RE: OIL SPILL BY THE OIL RIG	*	Docket 10-MD-2179
<i>DEEPWATER HORIZON</i> IN THE	*	
GULF OF MEXICO ON APRIL 20, 2010	*	Section J
	*	
Applies to:	*	New Orleans, Louisiana
	*	
Docket 10-CV-02771,	*	April 10, 2013
<i>IN RE: THE COMPLAINT AND</i>	*	
<i>PETITION OF TRITON ASSET</i>	*	
<i>LEASING GmbH, et al</i>	*	
	*	
Docket 10-CV-4536,	*	
<i>UNITED STATES OF AMERICA v.</i>	*	
<i>BP EXPLORATION & PRODUCTION,</i>	*	
<i>INC., et al</i>	*	
	*	
* * * * *		

DAY 25, AFTERNOON SESSION
TRANSCRIPT OF NONJURY TRIAL
BEFORE THE HONORABLE CARL J. BARBIER
UNITED STATES DISTRICT JUDGE

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AFTERNOON SESSION

(April 10, 2013)

THE COURT: Please be seated, everyone.

MR. IRPINO: Good afternoon, Your Honor. I have PSC's list of exhibits and demonstratives used and which are being offered in connection with the examination of Dr. Bourgoyne on April 8. That list has been sent around to the parties and we have received no objection. So we offer, file, and introduce those exhibits.

THE COURT: They relate to Dr. Bourgoyne, you said?

MR. IRPINO: Yes, Your Honor.

THE COURT: All right. Any objections?

Without objection, those are admitted.

MR. IRPINO: Thank you.

MS. KARIS: Good afternoon, Your Honor.

Hariklia Karis on behalf of BP.

I have here the exhibit list for Dr. Bourgoyne, as well, and we would tender those exhibits at this time. The list has been circulated and no objections have been received.

THE COURT: Any remaining objection to BP's exhibits?

Those are admitted.

MS. KARIS: I also have an offer to the Court the exhibits used with Mr. Robinson. That list has also been circulated and no objections have been received.

MR. BRIAN: Your Honor, I think Ms. Karis missed the

1 conversation I had with Mr. Regan. Yes, we do have a number of
2 objections to BP's exhibits with Mr. Robinson, Your Honor.
3 Those are the hearsay objections I made yesterday. You have
4 already ruled on it, but just for the record, I want to make
5 it. So I can either read the exhibits to which we object on
6 hearsay grounds, or I can provide a copy to your -- to court
7 staff. Whatever you would like.

8 **THE COURT:** I think you can just note that I'm going
9 to admit them. You can do it maybe during the marshaling
10 conference.

11 **MR. BRIAN:** I will do that, Your Honor.

12 **MS. KARIS:** And I apologize if there had been a
13 conversation.

14 Also, I have the exhibits and tender them to the
15 Court, those used during Mr. Morten Emilsen's examination. And
16 I believe it is accurate that no objections have been received.

17 **THE COURT:** Any remaining objection to BP's exhibits
18 regarding Mr. Emilsen?

19 Hearing none, those are admitted.

20 **MS. KARIS:** And then, finally, I have the exhibits
21 used with Mr. Lacy's deposition that were just played for that
22 excerpt that was played for the Court and tender those at this
23 time.

24 **THE COURT:** Any objections?

25 Without objection, those are admitted.

13 : 24 1 MS. KARIS: Thank you, Your Honor.

13 : 24 2 MR. BRIAN: Your Honor, Brad Brian for Transocean
13 : 24 3 again.

13 : 24 4 We circulated a list of exhibits that we used
13 : 24 5 during our cross-examination of Mr. Robinson. We received no
13 : 24 6 objections, and I would offer and introduce them and ask those
13 : 24 7 be admitted as well.

13 : 25 8 THE COURT: Any objection to Transocean's exhibits?

13 : 25 9 Without objection, those are admitted.

13 : 25 10 MR. UNDERHILL: Your Honor, Mike Underhill with U.S.

13 : 25 11 We have a small hiccup with Transocean on the
13 : 25 12 Bourgoyne and Emilsen exhibits, but we are trying to work this
13 : 25 13 out. So I hope to get back to you later and find out that
13 : 25 14 we --

13 : 25 15 THE COURT: On your exhibits, you mean?

13 : 25 16 MR. UNDERHILL: Yes, Your Honor. It's a simple
13 : 25 17 issue. It's over deposition cites. We are trying to work it
13 : 25 18 out.

13 : 25 19 THE COURT: Okay.

13 : 25 20 MR. UNDERHILL: Thanks.

13 : 25 21 THE COURT: All right. Any other preliminary
13 : 25 22 matters?

13 : 25 23 Mr. Brock?

13 : 25 24 MR. BROCK: Yes, Your Honor, just one thing. Our
13 : 25 25 first -- our next witness is Lee Lambert. I will let him be

13:25 1 taking the stand now if that's okay.

13:25 2 **THE COURT:** Yes.

13:25 3 **MR. BROCK:** And then on behalf of BP, I did not offer
13:25 4 the thumb drives of the videotape depositions that we viewed
13:25 5 just before the break of Daun Winslow and Vincent Tabler. So I
13:25 6 will offer them.

13:25 7 **THE COURT:** All right. Those are admitted.

13:26 8 **LEE LAMBERT,**

13:26 9 having been duly sworn, testified as follows:

13:26 10 **THE DEPUTY CLERK:** State your full name and correct
13:26 11 spelling for the record, please.

13:26 12 **THE WITNESS:** Conward Lee Lambert, C-O-N-W-A-R-D,
13:26 13 L-E-E, L-A-M-B-E-R-T.

13:26 14 **DIRECT EXAMINATION**

13:26 15 **BY MR. BROCK:**

13:26 16 **Q.** Mr. Lambert, would you tell the Court where you live,
13:26 17 please.

13:26 18 **A.** Tyler, Texas.

13:26 19 **Q.** Are you married?

13:26 20 **A.** Yes, sir.

13:26 21 **Q.** Do you have children?

13:26 22 **A.** I have three.

13:26 23 **Q.** Let's talk just a little bit about your education. Where
13:26 24 did you go to college?

13:26 25 **A.** Southwest Texas State University.

LEE LAMBERT - DIRECT

13:26 1 Q. What did you study there?

13:26 2 A. I have a Bachelor of Business Administration with a major
13:26 3 in computer information systems.

13:26 4 Q. When did you graduate from college?

13:26 5 A. 2002.

13:26 6 Q. After you graduated from college, where did you go to
13:26 7 work?

13:26 8 A. I went to work for Baker Hughes INTEQ as an MWD/LWD
13:27 9 engineer.

13:27 10 Q. I think there's some water right there to your left. Are
13:27 11 you okay?

13:27 12 A. I'm fine, yes.

13:27 13 Q. What was your job title there?

13:27 14 A. MWD/LWD engineer.

13:27 15 Q. What were your job duties and responsibilities in that
13:27 16 regard?

13:27 17 A. I ran downhole tools, which is measurement while drilling
13:27 18 and logging while drilling.

13:27 19 Q. Did you work on rigs?

13:27 20 A. I worked on land rigs, jack-up rigs, and deepwater
13:27 21 floaters.

13:27 22 Q. Did you work with -- what operators did you work with?

13:27 23 A. Various operators. A lot of the super majors, majors, and
13:27 24 a lot of mom-and-pop operators.

13:27 25 Q. How long were you employed with Baker Hughes?

LEE LAMBERT - DIRECT

13:27 1 A. Approximately 4 1/2 years.

13:27 2 Q. Why did you leave Baker Hughes?

13:27 3 A. I had an opportunity to go to work for BP as kind of a
13:27 4 step up in employment.

13:28 5 Q. Let's just for the record, when did you join BP as an
13:28 6 employee?

13:28 7 A. October 2006.

13:28 8 Q. How did you learn about an opportunity with BP?

13:28 9 A. I was working for -- on a BP project while I was with
13:28 10 Baker Hughes and learned about the Well Site Leader of the
13:28 11 Future program while I was on that project.

13:28 12 Q. Would you describe for the Court what that program is.

13:28 13 A. It's a training program to train people to become
13:28 14 well-site leaders.

13:28 15 Q. As a well site -- at present, are you a well site leader
13:28 16 for BP?

13:28 17 A. Yes, sir, I am.

13:28 18 Q. In what region do you work?

13:28 19 A. Gulf of Mexico, deepwater.

13:28 20 Q. Are you presently assigned to a rig?

13:28 21 A. I am.

13:28 22 Q. What rig do you work on?

13:28 23 A. The *Ensco DS-3*.

13:28 24 Q. What shift do you work on that rig?

13:28 25 A. I work on a 14-and-14 hitch.

LEE LAMBERT - DIRECT

13:28 1 Q. Let's talk just a little bit about your training to become
13:28 2 a well site leader. Why was it you were interested in coming
13:29 3 to work for BP?

13:29 4 A. While I was working for Baker Hughes, I had worked for
13:29 5 various amounts of operators. BP was one of the operators that
13:29 6 seemed to run their business very professionally and very
13:29 7 safely, so it interested me to go to work for them.

13:29 8 Q. What kind of training and mentorship did you receive as
13:29 9 part of the Well Site Leader of the Future Program when you
13:29 10 joined BP?

13:29 11 A. It was various formal classroom training. Excuse me.

13:29 12 MR. BROCK: Your Honor, may I approach? I'm going to
13:29 13 make him take a drink of water.

13:29 14 THE COURT: Okay.

13:29 15 THE WITNESS: Various classroom training, on-the-job
13:29 16 training on the rig. And we also were assigned a coach that
13:29 17 would help us with any issues, address any gaps that we had.
13:29 18 And we had mentors or well site leaders on the rig that would
13:30 19 help us with any questions that we had.

13:30 20 BY MR. BROCK:

13:30 21 Q. Did you graduate from that Well Site Leader of the Future
13:30 22 program?

13:30 23 A. I did, yes, sir.

13:30 24 Q. Was that, the training that you received in that program,
13:30 25 limited to land operations?

LEE LAMBERT - DIRECT

13:30 1 A. Yes, sir.

13:30 2 Q. When did you graduate from the Well Site Leader of the
13:30 3 Future land program?

13:30 4 A. I believe that was in September or October of 2007.

13:30 5 Q. When you graduated from that program, where were you
13:30 6 assigned to work?

13:30 7 A. Algeria.

13:30 8 Q. How long did you work in Algeria?

13:30 9 A. Two years.

13:30 10 Q. And did you work there as a well site leader?

13:30 11 A. Yes, sir.

13:30 12 Q. How many wells were you involved with while in Algeria?

13:30 13 A. To the best of my recollection, two wells.

13:30 14 Q. Was that the drilling of two wells?

13:30 15 A. Yes, sir.

13:30 16 Q. Now, you did not have any experience in terms of drilling
13:31 17 in deepwater during that time?

13:31 18 A. No, sir.

13:31 19 Q. At some point, did you learn about a Well Site Leader of
13:31 20 the Future program that would train you as a deepwater well
13:31 21 site leader?

13:31 22 A. Yes, sir. I was contacted and requested to join the Well
13:31 23 Site Leader of the Future deepwater program.

13:31 24 Q. Do you recall the month and year in which you joined the
13:31 25 Well Site Leader of the Future deepwater program?

LEE LAMBERT - DIRECT

13:31 1 A. I believe I joined in August of 2009.

13:31 2 Q. What's the time period under which you would serve in that
13:31 3 program before you would be eligible for graduation?

13:31 4 A. 14 months.

13:31 5 Q. So by April of 2010, you were about eight months into your
13:31 6 training in the deepwater program?

13:31 7 A. That's correct.

13:31 8 Q. Now, as a well site leader of the future in the deepwater
13:32 9 program, what was your schedule like?

13:32 10 A. Again, it was a 14-and-14 schedule, and we had formal
13:32 11 classroom training kind of in between.

13:32 12 Q. On the 14 days that you would be in service, would you be
13:32 13 offshore?

13:32 14 A. For the most part, I would either spend a hitch offshore
13:32 15 or spend a week or two weeks in the classroom, depending on the
13:32 16 schedule.

13:32 17 Q. When you were involved in training on a rig, what did you
13:32 18 do? What were you responsible to do, if anything?

13:32 19 A. I didn't have any responsibilities per se other than to
13:32 20 observe the operations and to learn and to get advice from the
13:32 21 well site leaders to train to be a well site leader, but I
13:32 22 didn't have any job responsibilities.

13:32 23 Q. In terms of your assignments to rigs over that period of
13:32 24 time, would the folks that were involved in the program try to
13:32 25 sequence your appearance on the rigs so that you could see the

LEE LAMBERT - DIRECT

13:33 1 different operations that took place offshore?

13:33 2 A. That's correct. If there was an operation that I hadn't
13:33 3 seen or that my coach thought that I needed to see, we would go
13:33 4 to that particular rig that was involved in that operation and
13:33 5 then bounce around from rig to rig to try to gather all these
13:33 6 experiences.

13:33 7 Q. How would you describe the quality of the training that
13:33 8 you received in the well site leader program?

13:33 9 A. I thought it was very high. I haven't heard of anybody
13:33 10 else in the industry that's doing anything like that. And when
13:33 11 I finished the program, I felt confident I could work as a well
13:33 12 site leader.

13:33 13 Q. Now, let's talk a little bit about your experience on the
13:33 14 *Deepwater Horizon*. Okay?

13:33 15 You were on the rig on April 20, 2010, correct?

13:33 16 A. That's correct.

13:33 17 Q. As I understand it, you went out for your hitch on the
13:34 18 *Deepwater Horizon* on April 16?

13:34 19 A. I believe that's correct, yes, sir.

13:34 20 Q. Would you have been advised of the operations that would
13:34 21 be taking place on the rig prior to your arrival?

13:34 22 A. Yes, sir. I would have access to handover notes from the
13:34 23 well site leaders or from my well site leader of the future
13:34 24 back-to-back, which I could read to get kind of an idea of
13:34 25 what's been going on and what are the forthcoming operations.

LEE LAMBERT - DIRECT

13:34 1 Q. While you were on the *Deepwater Horizon*, did you have
13:34 2 occasion to attend meetings that were taking place, that is
13:34 3 between the 16th and the 20th?

13:34 4 A. Yes, sir. We have pre-tour safety meetings. There's also
13:34 5 a morning call-in to discuss operations and safety issues. And
13:34 6 prior to each task being performed, I believe Transocean calls
13:34 7 them task-specific THINK plans or TSTPs, there would be a small
13:35 8 safety meeting related just to that task.

13:35 9 MR. BROCK: If we could see D-4369 quickly, please.

13:35 10 BY MR. BROCK:

13:35 11 Q. I have just put up a demonstrative of the kinds of
13:35 12 meetings I think you have just discussed, and I think I would
13:35 13 like to just draw your attention first to the 7:30 a.m. daily
13:35 14 meeting. Do you see that?

13:35 15 A. Yes, sir.

13:35 16 Q. What's the purpose of the daily meeting?

13:35 17 A. This is a teleconference or video conference with the
13:35 18 Houston office, or the Houston-based leadership team, to
13:35 19 give -- kind of get them up-to-date on what happened in the
13:35 20 past 24 hours, what the forward operations are going to be, and
13:35 21 to address any safety issues or operational issues of that day.

13:35 22 Q. If we come down to the pre-tour meeting, would you have
13:36 23 had the occasion to attend pre-tour meetings while you were on
13:36 24 the rig?

13:36 25 A. Yes, sir.

LEE LAMBERT - DIRECT

13:36 1 Q. And the purpose of those meetings is what?

13:36 2 A. That is a meeting just prior to crew change so that the
13:36 3 crews coming on for that 12-hour tour would be, you know, kind
13:36 4 of let them know where we are at, what the operations are, and
13:36 5 any safety issues or concerns related to those operations that
13:36 6 are upcoming.

13:36 7 Q. And then if we can come down just a little bit to
13:36 8 pre-operations THINK drill. Do you see that?

13:36 9 A. Yes, sir.

13:36 10 Q. What's the purpose of those meetings?

13:36 11 A. That is a job-specific safety meeting. In other words,
13:36 12 take one specific task, you are going to walk through the task
13:36 13 line by line, discuss any safety issues and mitigations that go
13:36 14 along with that.

13:36 15 Q. Now, in the context of these meetings, is this an
13:36 16 opportunity for contractors and the operator to share
13:37 17 information and provide an opportunity for people to ask
13:37 18 questions or raise concerns?

13:37 19 A. Absolutely. The pre-tour meetings, the contractors, rig
13:37 20 crew contractors, everyone is expected to be involved in that.
13:37 21 If they have any concerns or sim ops issues with that, they can
13:37 22 bring them up at that time. The pre-job meetings would be
13:37 23 specifically the people involved in that task. And the purpose
13:37 24 of those is to make sure everybody understands what's about to
13:37 25 happen, what their responsibility is, and if they have any

LEE LAMBERT - DIRECT

13:37 1 questions at that time, get them cleared up before the task
13:37 2 starts.

13:37 3 Q. Now, this was not your first hitch on the
13:37 4 *Deepwater Horizon*, was it?

13:37 5 A. No, sir.

13:37 6 Q. Do you know how much time or do you recall how much time
13:37 7 you had spent on the *Deepwater Horizon* before this hitch?

13:37 8 A. I believe this was my third hitch on the *Horizon*. That's
13:37 9 an estimate.

13:37 10 Q. And a hitch is two weeks?

13:37 11 A. That's correct.

13:37 12 Q. Based on your time on the *Deepwater Horizon*, could you
13:37 13 comment on the relationship between BP and Transocean in terms
13:38 14 of how they interacted and how they appeared to work?

13:38 15 A. Well, I thought everybody had a good working relationship.
13:38 16 We all worked as a team working towards a common goal. You
13:38 17 know, obviously, we have these meetings to share information,
13:38 18 kind of gather up, see where we are at and where we are headed,
13:38 19 but I didn't see any issues. And my impression was everybody
13:38 20 worked very well together.

13:38 21 Q. In terms of the approach to safety, what did you see in
13:38 22 terms of the approach to safety on the rig in terms of your
13:38 23 time there?

13:38 24 A. My impression was that, as with BP in general and with
13:38 25 Transocean on the *Deepwater Horizon*, that safety was always a

LEE LAMBERT - DIRECT

13:38 1 priority.

13:38 2 Q. How was that communicated to you?

13:38 3 A. Just -- I mean, it's communicated during these meetings in
13:38 4 the pre-job meetings. Also, witnessed various times when
13:39 5 people would stop the job if they saw something unsafe and just
13:39 6 in the actions and attitudes of the crews on the rig.

13:39 7 Q. All right. I want to turn your attention now to a couple
13:39 8 of the operations that took place between your arrival on
13:39 9 April 16 and the evening of April 20.

13:39 10 First of all, the Court has heard a lot of
13:39 11 conversation about this. I don't want to get into a lot of
13:39 12 detail. But were you present on April 19 at the time of the
13:39 13 conversion of the float collar?

13:39 14 A. Yes, sir.

13:39 15 Q. Where were you located during the period of time that the
13:39 16 float collar was being converted?

13:39 17 A. In the drill shack.

13:39 18 Q. Did you have a general understanding from your training to
13:39 19 that point about what the purpose of a float collar was?

13:39 20 A. Yes.

13:39 21 Q. What is that?

13:39 22 A. Any time you run -- well, in this case, your casing -- you
13:39 23 have float collars in it to run through hydrocarbon-bearing
13:40 24 zones to keep potential flow from flowing up through your drill
13:40 25 pipe.

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13 : 40 1 But it also serves as a second purpose. When you
13 : 40 2 cement, generally you will have a heavier fluid on the back
13 : 40 3 side annulus. Once you get that fluid in place, it will keep
13 : 40 4 it from U-tubing back up your string.

13 : 40 5 Q. Now, there's been a fair amount of testimony about a
13 : 40 6 number of attempts that were made and the pressure that was
13 : 40 7 applied during the conversion of the float collar. Were you
13 : 40 8 present in the drill shack when that activity was taking place?

13 : 40 9 A. Yes, sir.

13 : 40 10 Q. Could you please describe your recollection of what
13 : 40 11 happened during the float collar conversion attempts.

13 : 40 12 A. In general, they did not convert at the pressure that they
13 : 40 13 were expected to convert at. We rocked the pressure back and
13 : 40 14 forth a few times, brought it up a few hundred psi higher.

13 : 40 15 There were a couple of phone calls made from the well
13 : 40 16 site leader -- and I believe that was Don Vidrine -- to the
13 : 40 17 drilling engineering in town, the BP drilling engineer. And my
13 : 41 18 understanding is that he had discussions with Weatherford over
13 : 41 19 what the safe pressure would be without damaging the float, to
13 : 41 20 get these things converted.

13 : 41 21 We staged the pumps up slowly pressure-wise and
13 : 41 22 finally got them to convert somewhere around 3000 psi.

13 : 41 23 Q. Who was present during this operation; that is, in the
13 : 41 24 drill shack?

13 : 41 25 A. I believe the driller on tour -- I'm going to be honest

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13:41 1 with you. I don't remember the exact driller, but there had
13:41 2 been a driller and an assistant driller. I know that
13:41 3 Don Vidrine was there, myself, and a toolpusher.

13:41 4 Q. At the time this work was being done, were you satisfied
13:41 5 that the float collar had successfully converted?

13:41 6 A. Yes.

13:41 7 Q. Why was that?

13:41 8 A. The pressure dropped off and we gained returns.

13:41 9 Q. Do you recall whether or not anyone indicated that the
13:41 10 float collar had not converted?

13:41 11 A. No, sir.

13:42 12 Q. Let's turn our attention now to the evening of April 19,
13:42 13 and I want to talk to you about what you were doing during the
13:42 14 cement job. Okay.

13:42 15 I'll just start with where were you during the cement
13:42 16 job?

13:42 17 A. On the cement unit.

13:42 18 MR. BROCK: Now, if we could look just quickly at
13:42 19 TREX-708.1.

13:42 20 BY MR. BROCK:

13:42 21 Q. This is just a cover e-mail of a document I want to just
13:42 22 use by reference here from Mr. Chaisson to Mr. Gagliano. Do
13:42 23 you see that?

13:42 24 A. Yes.

13:42 25 MR. BROCK: Then if we could turn to 708.5. If you

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13 : 42 1 could highlight at the top 4-19-2010 at 1900.

13 : 43 2 **BY MR. BROCK:**

13 : 43 3 Q. Do you see that?

13 : 43 4 A. Yes, sir.

13 : 43 5 Q. I just want to use -- you would not have created this
13 : 43 6 document, nor would this document have been sent to you,
13 : 43 7 correct?

13 : 43 8 A. No, sir.

13 : 43 9 Q. I just want to use this by way of reference so that we can
13 : 43 10 talk about times a little bit. Okay?

13 : 43 11 A. Okay.

13 : 43 12 Q. At 1900, it reflects that a pre-job safety meeting with
13 : 43 13 the rig crew was held to review the detailed pumping procedure.

13 : 43 14 Did you attend that meeting?

13 : 43 15 A. Yes, sir.

13 : 43 16 Q. Were you present for the pumping of the cement from 1900
13 : 43 17 until the cement job was complete -- the pumping was complete?

13 : 43 18 A. Yes, sir, I was.

13 : 43 19 **MR. BROCK:** For frame of reference, if we can look to
13 : 43 20 706.6 and if you could highlight the time of 2143.

13 : 44 21 **BY MR. BROCK:**

13 : 44 22 Q. The document refers to a number of activities that took
13 : 44 23 place while the cement job was being conducted. At 2143, it
13 : 44 24 says "finished pumping 133 barrels of mud and turn over to the
13 : 44 25 rig to complete displacement."

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13:44 1 Do you see that?

13:44 2 A. Yes, sir.

13:44 3 Q. Now, were you there from 7:00 until 2143 and even a little
13:44 4 after that? But I just want to confirm that you were there
13:44 5 until that point.

13:44 6 A. Yes, sir, I was on the cement unit until that point. At
13:44 7 that point when we turned it over to the rig pumps, I would
13:44 8 have gone to the rig floor.

13:44 9 Q. What was your purpose in being there, Mr. Lambert?

13:44 10 A. On the cement unit?

13:44 11 Q. Yes.

13:44 12 A. Just to observe the job. It was my job to be out there to
13:44 13 learn how these things were done.

13:44 14 Q. Was there any comment made about whether or not this was a
13:44 15 successful job?

13:44 16 A. By all accounts, my impression was that it was a
13:44 17 successful job. I had pumped cement jobs before on land. From
13:44 18 what I saw, it looked to be a successful job.

13:45 19 Q. What was the criteria you were looking for to determine
13:45 20 that?

13:45 21 A. The proper amount of fluids at the proper density was
13:45 22 pumped; all the darts, to my recollection, and plugs launched
13:45 23 at the right time; the plug bumps on time; and the floats held.

13:45 24 Q. Good.

13:45 25 MR. BROCK: Let's go down to 4-20-10, down just a

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13:45 1 little below that.

13:45 2 **BY MR. BROCK:**

13:45 3 **Q.** And you see that -- in the early morning hours of the
13:45 4 20th, I think we see what you just described. The bottom plug
13:45 5 bumped at 2900 psi, with 673 barrels of mud pumped with the rig
13:45 6 pumps, top plug bumped, and checked the floats and bled back
13:45 7 5 barrels.

13:45 8 Do you see that?

13:45 9 **A.** Yes, sir.

13:45 10 **Q.** Now, when this activity was taking place in the
13:45 11 early-morning hours of April 20, 2010, had you changed
13:45 12 locations? Did you go to the doghouse to observe this
13:46 13 activity?

13:46 14 **A.** I would have been in the drill shack to observe this, yes,
13:46 15 sir.

13:46 16 **Q.** So you would have been on the cement unit until 2143.
13:46 17 When the cement job was finished pumping, you then went to the
13:46 18 drill shack?

13:46 19 **A.** Correct. To complete the displacement with the rig pumps.

13:46 20 **Q.** Are the things that are cited here -- the bottom plug
13:46 21 bumping, the top plug bumping, checking the floats and they are
13:46 22 holding -- are those, to you -- were those, to you, at that
13:46 23 time indicators of a successful cement job?

13:46 24 **A.** Yes, sir.

13:46 25 **Q.** Did the men in the drill shack, from your understanding

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13 : 46 1 and conversation, believe that the cement had been successfully
13 : 46 2 pumped?

13 : 46 3 A. That was my impression, yes.

13 : 46 4 Q. The same question in terms of interaction with the men on
13 : 46 5 the cement unit: Did they believe that the cement job had been
13 : 47 6 pumped in the appropriate way?

13 : 47 7 A. Yes, sir, I believe they did.

13 : 47 8 Q. It's about 1243 in the evening here when this work was
13 : 47 9 done. What did you do next?

13 : 47 10 A. Not long after that, I went into my stateroom and got some
13 : 47 11 sleep.

13 : 47 12 Q. On the morning of the 20th, were you able to attend the
13 : 47 13 11:30 a.m. pre-tour meeting; that is, the meeting that we
13 : 47 14 showed on the screen just a little bit ago?

13 : 47 15 A. Yes, sir, I was.

13 : 47 16 Q. Do you recall who was in attendance at the pre-tour
13 : 47 17 meeting on April 20?

13 : 47 18 A. The entire crew that would have been changing tours at
13 : 47 19 noon. The service companies that were changing tours or
13 : 47 20 weren't involved in their tasks could have been there, the OIM,
13 : 48 21 well site leader, and senior toolpusher.

13 : 48 22 Q. What was the purpose of that meeting?

13 : 48 23 A. The purpose is the same as those meetings, is to kind of
13 : 48 24 give an update of where we are at and what the upcoming
13 : 48 25 operations are and any issues, safety issues related to these

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13 : 48 1 upcoming operations.

13 : 48 2 Q. Do you recall whether or not there was discussion in that
13 : 48 3 meeting about the negative test?

13 : 48 4 A. Yes, sir, I believe there was.

13 : 48 5 Q. Who led that discussion?

13 : 48 6 A. To the best of my recollection -- I can't say who
13 : 48 7 definitely led that particular discussion, but in general,
13 : 48 8 that's a Transocean meeting. The well site leader will chime
13 : 48 9 in with any safety issues. Normally, it's the toolpusher who
13 : 48 10 is going to discuss the upcoming operations.

13 : 48 11 Q. So was the temporary abandonment procedure discussed in
13 : 48 12 that meeting?

13 : 48 13 A. I don't recall the temporary abandonment procedure being
13 : 48 14 discussed. I know that the negative pressure test was
13 : 48 15 discussed.

13 : 48 16 Q. As part of that procedure?

13 : 48 17 A. Yes. It's a step in it.

13 : 49 18 Q. So let me now turn your attention to TREN-41022.1.2.

13 : 49 19 Now, this is a different time period than the 11:30
13 : 49 20 test. Do you see this is the daily drilling report? And I
13 : 49 21 have called out a time of 1430, which would be 2:30 to 1500.
13 : 49 22 Do you see that?

13 : 49 23 A. Yes, sir.

13 : 49 24 Q. It says: "Hold pre-task meeting on displace."

13 : 49 25 Do you see that?

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13:49 1 A. Yes, sir.

13:49 2 Q. Did you attend that meeting?

13:49 3 A. Yes, sir.

13:49 4 Q. Where was this meeting held?

13:49 5 A. In the drill shack.

13:49 6 Q. What was the purpose of this meeting?

13:49 7 A. This is a task-specific THINK plan or the toolbox talk
13:49 8 meeting just prior to lining up pumping the seawater and
13:49 9 conducting the negative test.

13:50 10 Q. Were the details of the negative test -- that is, how it
13:50 11 was to be conducted -- discussed in this meeting, to your
13:50 12 recollection?

13:50 13 A. Yes, sir.

13:50 14 Q. Who led that discussion?

13:50 15 A. That was the toolpusher, Wyman Wheeler.

13:50 16 Q. During the discussion about the test that was to be
13:50 17 conducted, was there any confusion among the men about
13:50 18 responsibilities and roles and how the test was to be
13:50 19 conducted?

13:50 20 A. No, sir.

13:50 21 Q. From your observation, did the crew and the
13:50 22 representatives of BP who were in the drill shack for that
13:50 23 meeting understand how the test was to be conducted and what
13:50 24 the procedures would be?

13:50 25 A. Yes, sir. That's my impression, yes.

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13:50 1 Q. Now, after the conclusion of this meeting at around 3:00,
13:51 2 do you have a recollection as to what happened next?

13:51 3 A. In general terms, I can't give you exact times, but we
13:51 4 would be lining up to actually pump the seawater and perform
13:51 5 the negative tests, so that would involve displacing the choke
13:51 6 and kill lines with seawater, displacing -- pumping your spacer
13:51 7 down your drill pipe, followed by seawater, pumping that around
13:51 8 your annulus up to above the BOP, and closing your annular
13:51 9 preventers.

13:51 10 Q. Now, prior to this occasion -- that is, the occasion of
13:51 11 April 20, 2010 -- had you ever participated in the setup and
13:51 12 interpretation of a negative test?

13:51 13 A. No, sir.

13:51 14 Q. This was your first one?

13:51 15 A. That's correct.

13:51 16 Q. Was your purpose in being present in the drill shack
13:51 17 during the negative test to learn from the well site leaders
13:52 18 and from the Transocean toolpusher and driller and assistant
13:52 19 driller the specifics of conducting a negative test?

13:52 20 A. That's correct, yes, sir.

13:52 21 MR. BROCK: Now, let me see Exhibit-- actually, just
13:52 22 let me just see the ELMO, if I could.

13:52 23 BY MR. BROCK:

13:52 24 Q. Mr. Lambert, can you see that?

13:52 25 A. Yes.

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13:52 1 Q. This is a schematic of the -- well, let me just ask you,
13:52 2 does this appear to be a schematic of the driller's shack
13:52 3 oriented to look at the rotary table?

13:52 4 A. Yes, sir, it is.

13:52 5 Q. I'll highlight it in yellow, the location of the drill
13:53 6 shack as well as the location of where the rotary table would
13:53 7 be located.

13:53 8 A. Yes, sir.

13:53 9 Q. Is this where you were during the conduct of the negative
13:53 10 test in the drill shack?

13:53 11 A. Yes, sir.

13:53 12 Q. Can you just tell me the names of the people who were in
13:53 13 the drill shack with you while this negative test was being
13:53 14 conducted.

13:53 15 A. At the beginning of the tests, Wyman Wheeler, the
13:53 16 toolpusher; Bob Kaluza, the well site leader; Dewey Revette,
13:53 17 the driller; Stephen Curtis, the assistant driller; and Don
13:53 18 Clark, the second assistant driller.

13:53 19 Q. We've got Wheeler, Kaluza, Curtis, Clark, and I think I
13:53 20 missed one.

13:53 21 A. Kaluza, Curtis, Clark. And Revette, the driller.

13:54 22 Q. And Lambert?

13:54 23 A. Yes, sir.

13:54 24 Q. Let me pull up now TREG-1.88.1.

13:54 25 Mr. Lambert, this is a call-out from one of the

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13 : 5 4 1 graphs that's in the Bly report, and I just want to use this
13 : 5 4 2 for frame of reference with you at this point. Okay?

13 : 5 4 3 A. Okay.

13 : 5 4 4 Q. During the period of time that you were in the drill
13 : 5 4 5 shack, were there pressures being seen on the drill pipe,
13 : 5 4 6 especially early in the test, that were bled off and then the
13 : 5 4 7 pressure would come back up?

13 : 5 4 8 A. That's correct, yes, sir.

13 : 5 5 9 Q. When the crew would see that there was a pressure buildup,
13 : 5 5 10 what did they do?

13 : 5 5 11 A. Well, there was a lot of discussion about where the
13 : 5 5 12 pressure was coming from. At some point there was a theory
13 : 5 5 13 that we had heavier fluid in the kill line that was U-tubing up
13 : 5 5 14 the drill pipe. At one point we found that the annular was
13 : 5 5 15 actually leaking, which would cause fluids to come up your
13 : 5 5 16 drill pipe.

13 : 5 5 17 After everybody would discuss and decide what we were
13 : 5 5 18 going to do, they would bleed off some of the pressure on the
13 : 5 5 19 drill pipe and see if it would stabilize or continue
13 : 5 5 20 increasing.

13 : 5 5 21 Q. When the pressure was bled off, did it build back up over
13 : 5 5 22 several occasions?

13 : 5 5 23 A. Yes, sir, it did.

13 : 5 5 24 Q. If you look at the diagram that I've put up here, do you
13 : 5 5 25 see the green line that relates to drill pipe pressure? It's

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13:55 1 No. 8 on the schematic or the diagram that you have there. And
13:56 2 the pressure actually goes up to about 1400. Do you see there?

13:56 3 A. Yes, sir.

13:56 4 Q. Then it becomes steady over a period of time?

13:56 5 A. Yes, sir.

13:56 6 Q. Does that schematic appear to be consistent with your
13:56 7 recollection of when the drill pipe pressure went up to about
13:56 8 1400 and then leveled off?

13:56 9 A. Yes, sir, that appears to be representative of that.

13:56 10 There were several bleed-offs before that, but kind
13:56 11 of towards the end, when we stopped to monitor, yes, the drill
13:56 12 pipe pressure increased to approximately 1400 pounds.

13:56 13 Q. Do you see, sort of over on the left-hand side, if you
13:56 14 look at drill pipe pressure, that it does reflect there a
13:56 15 bleed-off, which would be No. 2, pressure increase goes up in
13:56 16 the area where No. 4 is, there's another bleed-off showing
13:57 17 there at No. 5, and the pressure comes back down?

13:57 18 A. Yes, sir.

13:57 19 Q. Is that generally consistent with your recollection that
13:57 20 the pressure would go up, it would be bled off, and then it
13:57 21 would -- it would go up, be bled off, and then come back up?

13:57 22 A. Yes, sir.

13:57 23 Q. Now, who was in the drill shack monitoring pressure and
13:57 24 flow during the conduct of this test?

13:57 25 A. Well, the toolpusher, well site leaders -- the driller is

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1 responsible for this operation, my understanding. The
2 assistant driller would be monitoring the pressures constantly.
3 Anything bled back from the drill pipe would have been bled
4 back to the cement unit. So the cementer would have been on
5 the cement unit monitoring flow returns.

6 Q. In this drill shack here during the period of time --
7 let's say, if we are looking at this period over here, about
8 1830, where you come up to 1400 and you stay in that range, who
9 was sitting in the driller's chair during that period of time?

10 A. In the driller's chair was Dewey Revette.

11 Q. Was anyone in the assistant driller's chair? Do you
12 recall?

13 A. It was either Steve Curtis or Don Clark. They have two
14 assistant drillers. I don't recall which were sitting there.
15 Both were in the drill shack.

16 Q. During this period of time, where were you located,
17 Mr. Lambert?

18 A. Just behind the driller's chair.

19 Q. Right over in this area?

20 A. I don't have your slide up.

21 **THE COURT:** Mr. Brock.

22 **MR. BROCK:** I was so intent on my slide. I
23 apologize. Thank you, Judge.

24 May I approach, Your Honor?
25

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13:59 1 BY MR. BROCK:

13:59 2 Q. If you'll just take this laser pointer, Mr. Lambert. You
13:59 3 don't have to stand up. You can sit and just sort of point us
13:59 4 where you were.

13:59 5 A. I would have been kind of in this area here.

13:59 6 Q. So over here?

13:59 7 A. Yes, sir.

13:59 8 Q. Now, we can go back to the slide we had before, please.

13:59 9 Now, once the pressure came up to around 1400 and
13:59 10 stayed there in a pretty steady line, was there discussion
13:59 11 ongoing in the drill shack about this pressure that was being
13:59 12 seen in relation to the kill line pressure that's also
13:59 13 reflected here?

14:00 14 A. Yes, sir. There was -- I would say there was discussion
14:00 15 the entire time while the pressure was building and bleeding
14:00 16 off. At this time where we kind of had it stabilized and
14:00 17 stopped and were monitoring it, there were still discussions
14:00 18 going on between the well site leader, the driller, assistant
14:00 19 drillers, toolpushers.

14:00 20 At this point I had asked Jason Anderson, the
14:00 21 toolpusher, kind of where -- for my understanding where these
14:00 22 pressures were coming from. And I got an explanation that the
14:00 23 heavy mud weight in the riser would transmit pressure through
14:00 24 the annular preventer into the wellbore which you would, in
14:00 25 turn, see up the drill pipe. He said he had seen that before

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14:00 1 and that was normal.

14:00 2 It was a little confusing to me at the time, but --
14:00 3 trying to wrap my head around it. I respected Jason and took
14:01 4 that and just try to understand it. I asked Mr. Kaluza about
14:01 5 it, and he said that that was possible.

14:01 6 Q. Is this phenomenon you are describing now what we have
14:01 7 heard about in this case, the bladder effect?

14:01 8 A. It has at some time been coined the bladder effect, yes,
14:01 9 but it's that phenomenon I'm describing to you.

14:01 10 Q. Have you described for us now the detail of what
14:01 11 Mr. Anderson conveyed to you as the explanation for the
14:01 12 differential pressure?

14:01 13 A. That is what I just described, yes, sir.

14:01 14 Q. Yes, that's what I'm asking. You have described for us
14:01 15 what Mr. Anderson explained to you when you asked him, "Why are
14:01 16 we seeing this pressure on the drill pipe?"

14:01 17 A. Yes, sir.

14:01 18 Q. Did anyone other than Mr. Anderson offer this explanation
14:01 19 to you; that is, to explain the pressure on the drill pipe?

14:02 20 A. No, sir. The explanation came from Jason.

14:02 21 Q. You did mention you asked Mr. Kaluza about it and he said
14:02 22 it was possible?

14:02 23 A. Yes, sir, that's correct.

14:02 24 Q. Did Mr. Anderson say he had seen this before?

14:02 25 A. Yes, sir, he did.

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14:02 1 Q. Now, did you stay in the drill shack until the conclusion
14:02 2 of the negative test?

14:02 3 A. No, sir. As we were monitoring the pressures here, I
14:02 4 would say as an estimate, while we were shut in monitoring the
14:02 5 pressures, I observed that for 10 to 15 minutes and then went
14:02 6 downstairs to do some paperwork.

14:02 7 Q. Let me just ask you this question. Based on your
14:02 8 discussions and conversations and what you overheard with the
14:02 9 men in the drill shack, did you have the impression they were
14:02 10 satisfied that the annular compression or the bladder effect
14:03 11 concept explained and answered the question about the
14:03 12 differential pressure?

14:03 13 A. That was my impression, yes, sir. Nobody seemed concerned
14:03 14 about it.

14:03 15 Q. Now, you, as you have described, left the drill shack
14:03 16 before the completion of the period of time that they were
14:03 17 watching for flow?

14:03 18 A. That's correct, yes, sir.

14:03 19 Q. Where did you go next?

14:03 20 A. I went to my office to do some reports for my coach.

14:03 21 Q. I'll just ask you, did you get any other information, any
14:03 22 additional -- let me start over.

14:03 23 Did you receive any other information about the
14:03 24 outcome of the negative test between the time you left the
14:03 25 drill shack and the explosions that occurred later in the

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14:03 1 evening?

14:03 2 A. Yes, sir. I ran into Don Vidrine in the hallway in the
14:04 3 well site leader office as I was heading to my stateroom. I
14:04 4 asked him how the negative test went. He said everything was
14:04 5 fine, they were moving on to the displacement.

14:04 6 Q. Now, you went on to bed from there?

14:04 7 A. Yes, sir.

14:04 8 Q. About what time would that have been that you went to your
14:04 9 stateroom?

14:04 10 A. It would be an estimate, but I would say between 8:30 and
14:04 11 9:00, somewhere around that time frame.

14:04 12 Q. What was the next thing that happened on that evening in
14:04 13 terms of your awareness of an incident on the
14:04 14 *Deepwater Horizon*?

14:04 15 A. I heard a large explosion, it kind of woke me out of bed.
14:04 16 I heard a second explosion, jumped out of bed. I heard the
14:04 17 fire alarms. Threw on my clothes, went into the hallway.
14:05 18 There was smoke in the hallway.

14:05 19 I made my way out to the lifeboat area where
14:05 20 everybody was -- I'm not going to say "mustering." It was
14:05 21 fairly chaotic, but everybody was gathering up. There were
14:05 22 assistant drillers trying to get mustered and get everybody
14:05 23 ready to load the lifeboats. Some people had jumped overboard.
14:05 24 There was a couple of people contemplating that.

14:05 25 I tried to talk them into not jumping, it's a lot

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14:05 1 safer to be in the lifeboat. Finally was able to get everybody
14:05 2 loaded up on the lifeboat. Once we did that, the coxswain
14:05 3 lowered the lifeboats and drove the lifeboats into the
14:05 4 *Damon Bankston*, where we offloaded on to the *Bankston*.

14:05 5 Q. Thank you.

14:05 6 Just a few more questions, Mr. Lambert, about your
14:05 7 time on the *Deepwater Horizon*. I guess the first thing I would
14:05 8 ask you is: During your time on the rig from the 16th to the
14:06 9 20th, did you see any evidence of people trying to cut corners
14:06 10 with regard to expenditures if safety was an issue? Did you
14:06 11 personally observe that?

14:06 12 A. No, sir, never.

14:06 13 Q. Did anyone tell you that the rig was behind schedule and
14:06 14 that you needed to hurry up operations?

14:06 15 A. No, sir.

14:06 16 Q. Did you get the impression that the rig crew or the BP
14:06 17 well site leaders were rushing to get the Macondo well
14:06 18 finished?

14:06 19 A. No, sir, not at all.

14:06 20 Q. What was your general observation of operations in terms
14:06 21 of attention to detail, attention to safety, and doing things
14:06 22 in the right order and the right time, just your general
14:06 23 impression?

14:06 24 A. To me, it seemed like various other jobs that I had worked
14:06 25 on other than it being an exploratory well where you kind of

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14:06 1 have a heightened sense of what you're drilling through, but
14:07 2 other than, it seemed operations as normal. Safety always came
14:07 3 first and we tried to be as efficient as possible, but it
14:07 4 seemed very similar to how other rigs operated.

14:07 5 **MR. BROCK:** Thank you, Mr. Lambert. That's all I
14:07 6 have.

14:07 7 **THE COURT:** Plaintiffs.

14:07 8 **MR. HERMAN:** Yes, Your Honor.

9 **CROSS-EXAMINATION**

14:07 10 **BY MR. HERMAN:**

14:07 11 **Q.** Good afternoon, Mr. Lambert. My name is Steve Herman, and
14:07 12 I have you under cross-examination for the PSC.

14:07 13 Is it fair to say, Mr. Lambert, that you generally
14:07 14 disagree with the proposition that drilling in deep water is
14:07 15 essentially the same as drilling on land or in shallow water?

14:08 16 **A.** I'm not sure I understand the way you phrased that
14:08 17 question, but it is not the same to drill in deep water as it
14:08 18 is on land, no.

14:08 19 **Q.** In your experience, deepwater drilling is more complex,
14:08 20 correct?

14:08 21 **A.** That's correct.

14:08 22 **Q.** It requires more sophisticated technology, correct?

14:08 23 **A.** I agree with that, yes, sir.

14:08 24 **Q.** When you were trained to be a well site leader of the
14:08 25 future either time, first time or second time, am I correct

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14:08 1 that you never took a course in deepwater cementing?

14:08 2 A. I did not take a course in deepwater cementing. I did
14:08 3 have a course in cementing, general cementing, yes.

14:08 4 Q. You did not take a course in procedures for well
14:08 5 abandonment, correct?

14:08 6 A. I did not take a course in procedures for well
14:08 7 abandonment. Are you talking about T&As, P&As of wells?

14:08 8 Q. I'm not sure exactly. Why don't you tell me.

14:09 9 A. Can you rephrase the question? I'm not understanding.
14:09 10 Are you talking about well abandonment, temporary abandonment,
14:09 11 or permanent abandonment of a well?

14:09 12 Q. Procedures for well abandonment.

14:09 13 A. No, sir, that would be more of an engineering course.

14:09 14 Q. Am I correct you did not take a course for how to conduct
14:09 15 pressure tests?

14:09 16 A. I did not take a formal course on how to conduct pressure
14:09 17 tests, no, sir.

14:09 18 Q. Am I correct that you never received any training from BP
14:09 19 on spacer, slurry, or volumes for displacement operations?

14:09 20 A. I will disagree with that. I believe that in the
14:09 21 cementing course that I took in the first class, we did discuss
14:09 22 properties of spacers and the volumes for displacement.

14:09 23 Q. Do you recall giving a deposition in this case?

14:09 24 A. Yes, sir, I do.

14:09 25 Q. Do you recall being asked in that deposition, "Have you

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14:09 1 received any training from BP on spacer slurries or volumes for
14:10 2 displacement operations?"

14:10 3 A. Are you talking in terms of displacing the well to
14:10 4 seawater, or are you talking in terms of a cement job?

14:10 5 Q. I'm asking whether you recall in your previous deposition
14:10 6 being asked the question, "Have you received any training from
14:10 7 BP on spacer, slurries, or volumes for displacement
14:10 8 operations?"

14:10 9 THE COURT: Why don't you put it up on the screen.

14:10 10 MR. HERMAN: Yes, Your Honor.

14:10 11 This is TREN-22311.358.1.PSC.

14:10 12 BY MR. HERMAN:

14:10 13 Q. I have the full deposition if you would like to see the
14:10 14 context.

14:10 15 A. I would like to see that because when you're talking about
14:10 16 slurries, in my mind you are discussing cementing operations.
14:10 17 You can have spacers and slurries in cementing operations. You
14:10 18 also may have spacers while you are going to displace a well.

14:10 19 Q. Is there one that you received training in and one that
14:11 20 you didn't?

14:11 21 A. I have never received training on displacing a well to
14:11 22 seawater or displacing a riser to seawater, no. I have had
14:11 23 training in cementing operations using spacers, slurries, and
14:11 24 displacing that cement.

14:11 25 Q. I think that explains it for my purposes, but I'm happy to

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1 show you the deposition if you want to look at it further.

2 MR. BROCK: Your Honor, if he is satisfied, we are.

3 THE COURT: Are you satisfied, sir?

4 THE WITNESS: Yes, sir.

5 THE COURT: It makes it unanimous.

6 BY MR. HERMAN:

7 Q. Mr. Lambert, part of this training program that you were
8 in, you were evaluated as being a well site leader candidate;
9 is that correct?

10 A. Well site leader of the future, yes, sir.

11 Q. One of the things that you were being graded on was a
12 commitment to cost control; is that correct?

13 A. That is an element of it, being financially responsible,
14 yes; but I don't believe that that holds much weight, no.

15 Q. But it was on your little grading form, right, under
16 "Management," whether you were good or conscientious about or
17 had a commitment to cost control?

18 A. It was on the grading form, yes; but I believe that's in
19 reference to not ordering rental tools two months in advance,
20 not using the rental tools, and leaving them on the rig for
21 three or four months and paying rents on them when you don't
22 need them.

23 MR. HERMAN: Could we pull up, please, TRES-2159.1.1.

24 BY MR. HERMAN:

25 Q. Do you recognize this document, sir?

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14:12 1 A. Yes, it looks like an evaluation form for a well site
14:12 2 leader of the future.

14:12 3 Q. Under "Management," it talks about "How does the employee
14:12 4 manage his work on the rig?"

14:12 5 Correct?

14:12 6 A. Yes, sir.

14:12 7 Q. What I have highlighted there is "interest in cost
14:12 8 control," correct?

14:12 9 A. Yes, sir.

14:12 10 Q. It's not limited to the situation that you just outlined
14:12 11 for the Court, correct?

14:12 12 A. I don't think it's limited to that. I think it is asking
14:13 13 whether the -- myself in this case -- is interested in being
14:13 14 financially responsible and being efficient and planning our
14:13 15 work so that we are not throwing away money.

14:13 16 Q. It shows that you had a high interest in that, correct?

14:13 17 A. Yes, sir.

14:13 18 MR. HERMAN: That's fine, Carl. Thank you.

14:13 19 BY MR. HERMAN:

14:13 20 Q. Do you recall being interviewed after the incident?

14:13 21 A. Yes, several times.

14:13 22 MR. HERMAN: Can we please pull up TREX-2157.2.1,
14:13 23 please.

14:13 24 BY MR. HERMAN:

14:13 25 Q. Do you recognize these notes as part of your interview, or

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14:13 1 one of your interviews?

14:13 2 A. Just give me just one second to read over them.

14:13 3 Q. Sure.

14:13 4 A. Yes, sir. Okay.

14:14 5 Q. The first thing I highlighted there is: "Joe ML would be
14:14 6 monitoring from his screens in his unit."

14:14 7 What does that mean, if you recall?

14:14 8 A. That's the mud logger would be monitoring his pit volume
14:14 9 totalizer.

14:14 10 Q. Then a couple lines below it says: "ML would be watching
14:14 11 flow out and PVT."

14:14 12 What does that mean?

14:14 13 A. The same, the mud logger would be watching his flow paddle
14:14 14 to see if there was an increase in flow and his pit volume
14:14 15 totalizer to see he was taking a gain.

14:14 16 Q. At the time of this interview, that was your understanding
14:14 17 of what the mud logger would have been doing?

14:14 18 A. Yes, sir.

14:14 19 Q. Have you heard any explanation about sensors being in the
14:14 20 wrong place since this accident or since you gave this
14:14 21 interview?

14:14 22 A. No, sir, I have not.

14:14 23 Q. Let me ask you this. To your knowledge, is there any
14:14 24 reason why Sperry could not have moved the sensors to a
14:14 25 different location where you could monitor the flow-out, even

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14:14 1 where the fluids are being diverted?

14:15 2 **MR. BROCK:** Your Honor, I'm going to object to that.
14:15 3 We have called this witness for a limited fact purpose. I
14:15 4 think that calls for expert testimony or opinion testimony.

14:15 5 **THE COURT:** Sperry could not have moved the sensors
14:15 6 to a different location?

14:15 7 **MR. HERMAN:** In his experience as a well site leader.

14:15 8 **THE COURT:** I'll let him answer that, but we don't
14:15 9 want to get off into expert testimony.

14:15 10 Can you answer that?

14:15 11 **THE WITNESS:** At the time I wouldn't have known that
14:15 12 as a trainee. I wouldn't know whether they could have moved
14:15 13 that or not, no.

14:15 14 **BY MR. HERMAN:**

14:15 15 **Q.** As a well site leader today, is that something you check
14:15 16 for, given this experience, to make sure that the mud loggers
14:15 17 have put sensors in a spot where they can monitor even where
14:15 18 there's a displacement of fluids?

14:15 19 **MR. BROCK:** Objection --

14:15 20 **BY MR. HERMAN:**

14:15 21 **Q.** Diversion of fluids?

14:15 22 **MR. BROCK:** -- opinion testimony.

14:15 23 **MR. HILL:** We join the objection.

14:15 24 **THE COURT:** I think we have already had testimony
14:16 25 about how and when the sensor got where it was.

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14:16 1 MR. HERMAN: I apologize, Your Honor. I recall the
14:16 2 sensors being in the wrong place, but I don't remember
14:16 3 necessarily somebody saying how they got there. But I will
14:16 4 move on.

14:16 5 BY MR. HERMAN:

14:16 6 Q. Finally, the last thing that's highlighted says: "Asked
14:16 7 about flow-in and -out data at 2110, 'looks like well was
14:16 8 flowing.'"

14:16 9 Do you recall what those comments were in reference
14:16 10 to?

14:16 11 A. Yes, sir. This was -- if I'm not mistaken, these were the
14:16 12 notes from the Bly investigation reports. This was, of course,
14:16 13 after the fact. I was shown a strip chart of recorded data
14:16 14 from the well. I didn't have access to this at the time.
14:16 15 Looking at it after the fact, you could clearly see that the
14:16 16 flow-out was increasing.

14:16 17 MR. HERMAN: Thank you. That's fine, Carl. Thank
14:16 18 you.

14:16 19 BY MR. HERMAN:

14:16 20 Q. Now, I would like to talk for just a minute about this
14:16 21 term that you used, the so-called, quote/unquote, bladder
14:17 22 effect. The term "bladder effect," that actual term, that's
14:17 23 not something you actually heard on the rig that night,
14:17 24 correct?

14:17 25 A. It is something that I did hear on the rig that night,

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14:17 1 yes, sir.

14:17 2 Q. What I thought you had said during direct is that that's
14:17 3 something that was later coined the bladder effect. Am I wrong
14:17 4 about that?

14:17 5 A. It was coined at some time on the rig. The explanation
14:17 6 was given to me and originated from Jason Anderson, the
14:17 7 toolpusher. Whenever the term was coined and tagged to that
14:17 8 explanation, I don't know. It was after he gave me his
14:17 9 explanation.

14:17 10 Q. Was it after the event?

14:17 11 A. No, sir.

14:17 12 Q. Well, do you recall in your deposition testifying about
14:17 13 this and saying, "What's being coined the bladder effect now"?

14:17 14 A. Yes.

14:17 15 Q. Do you recall that?

14:17 16 A. Yes, sir.

14:17 17 Q. That was your testimony in May of 2011, correct?

14:17 18 A. I don't know the exact dates, but yes, sir.

14:17 19 Q. You were saying at that time in May of 2011, "What's being
14:17 20 coined the bladder effect now."

14:18 21 Do you recall that?

14:18 22 A. It was being coined the bladder effect on the rig and it
14:18 23 still was being coined the bladder effect at that time.

14:18 24 Q. Now, sitting here today, after everything you have seen
14:18 25 and everything you have heard and everything BP has or hasn't

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14:18 1 taught you, do you still believe that the bladder effect is a
14:18 2 viable phenomenon?

14:18 3 A. With my knowledge today, no, sir, I don't.

14:18 4 Q. At the time of your deposition in May of 2011, didn't you
14:18 5 still believe that the bladder effect was a viable phenomenon?

14:18 6 A. I can't say at that time whether I recall whether I would
14:18 7 think that or not. I don't believe it was just because of the
14:18 8 amount of controversy that was surrounding it.

14:18 9 Q. Was that controversy going on at the time of your
14:18 10 deposition in May of 2011?

14:18 11 A. It's ongoing today as far as I'm concerned.

14:18 12 Q. Do you recall being asked specifically during your
14:18 13 deposition:

14:18 14 "QUESTION: If somebody tells you in the future while
14:18 15 you're drilling a well and you're on-site and they observe
14:19 16 what I will loosely refer to as a pressure issue and you
14:19 17 say -- and they say, 'Well, don't worry, that's bladder
14:19 18 effect,' what would your response be?"

14:19 19 Do you recall being asked that in your deposition?

14:19 20 MR. BROCK: Your Honor, I think that's improper
14:19 21 impeachment. I think he should ask him a question, if he is
14:19 22 going to use the deposition, let him answer. If he has
14:19 23 something that's inconsistent, we can show it. He can't see
14:19 24 the testimony.

14:19 25 THE COURT: I think you should show it to the

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14:19 1 witness.

14:19 2 MR. HERMAN: Sure, Your Honor. I apologize.

14:19 3 TREX-22311.270.1.PSC.

14:19 4 BY MR. HERMAN:

14:19 5 Q. Do you recognize this deposition testimony?

14:19 6 A. Just give me one second to read it.

14:19 7 Q. Sure. I apologize.

14:19 8 A. Yes, sir. Okay. I recognize it.

14:20 9 Q. And what was your answer to the question that I read a
14:20 10 couple minutes ago?

14:20 11 A. As stated here: "Well, I would have to have an
14:20 12 explanation of it from them, and then I would discuss it with
14:20 13 my wells team to see if that seems viable or if anybody else
14:20 14 has any experience in that area."

14:20 15 Q. So as of your deposition in May of 2011, the bladder
14:20 16 effect wasn't something that you were just rejecting out of
14:20 17 hand, correct?

14:20 18 A. According to my deposition, no. I would have asked
14:20 19 somebody about it.

14:20 20 MR. HERMAN: Finally, the last document, this is
14:20 21 TREX-2152.1.1, which is combined with .1.2, hopefully, for the
14:20 22 Court's convenience. But this is something Your Honor has seen
14:20 23 before, been referred to as an "ops note."

14:20 24 BY MR. HERMAN:

14:20 25 Q. Are you familiar with this, Mr. Lambert?

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14:20 1 A. Yes, sir.

14:20 2 Q. There is an e-mail from Mr. Morel that says: "Here is the
14:21 3 negative test procedure." And then it forwards an e-mail from
14:21 4 down below.

14:21 5 Do you see that on the upper right-hand corner?

14:21 6 A. Yes, sir.

14:21 7 Q. It makes sense that after the incident, Mr. Morel would
14:21 8 have been forwarding to somebody on the Bly team, etc., the
14:21 9 negative test procedure?

14:21 10 MR. BROCK: I object to the form.

14:21 11 You're saying he sent this afterwards? This
14:21 12 clearly established it was sent before.

14:21 13 MR. HERMAN: It's an e-mail with a string. Part of
14:21 14 the string is Mr. Morel forwarding.

14:21 15 THE COURT: I'm not sure. What's the question?
14:21 16 What's the question?

14:21 17 MR. BROCK: I thought he said after the event. I
14:21 18 apologize.

14:21 19 MR. HERMAN: I apologize.

14:21 20 BY MR. HERMAN:

14:21 21 Q. Getting to the point, do you recall getting on Tuesday,
14:21 22 April 20, this e-mail from Mr. Morel that shows you as one of
14:21 23 the recipients?

14:21 24 A. Yes, sir, I do.

14:21 25 Q. And it's called an ops note?

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14:21 1 A. That's correct.

14:21 2 Q. No. 4, as I understand it, kind of generally refers to the
14:22 3 negative pressure test procedure. Do you see that?

14:22 4 A. Yes, sir.

14:22 5 Q. Is that your understanding as well?

14:22 6 A. That No. 4 refers to the negative test procedure, yes.

14:22 7 Q. Now, what I want to ask you about is 11(b). Do you see
14:22 8 that at the very bottom?

14:22 9 A. Yes, sir.

14:22 10 Q. Am I correct that you never got to step 11, correct?

14:22 11 A. No, sir.

14:22 12 Q. But the last step in this process was in 11(b), where I
14:22 13 highlighted there, what's the last step?

14:22 14 A. "Plot on chart and send to Houston for confirmation."

14:22 15 Q. Thank you.

14:22 16 MR. HERMAN: No further questions.

14:22 17 MR. UNDERHILL: No questions, Your Honor.

14:22 18 THE COURT: Alabama?

14:22 19 MR. SINCLAIR: No questions.

14:22 20 THE COURT: Louisiana?

14:22 21 MR. KANNER: No questions, Your Honor.

14:22 22 THE COURT: Transocean.

14:22 23 CROSS-EXAMINATION

14:23 24 BY MR. BRIAN:

14:23 25 Q. Good afternoon, Mr. Lambert. My name is Brad Brian. I

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14:23 1 represent Transocean and I have you on cross-examination.

14:23 2 You spent about three or four separate hitches on the
14:23 3 *Deepwater Horizon*, did you not?

14:23 4 A. I estimate it to be three, yes. Three to four it could
14:23 5 be.

14:23 6 Q. During that time, you had the opportunity to work with and
14:23 7 get to know Jimmy Harrell, Randy Ezell, Jason Anderson,
14:23 8 Dewey Revette, Stephen Curtis, all those folks, did you not?

14:24 9 A. Yes, sir, I did.

14:24 10 Q. You realized they were all highly respected on the rig,
14:24 11 were they not?

14:24 12 A. Yes, sir. And I respected them myself.

14:24 13 Q. You never saw any of them act in a way that you thought
14:24 14 was callous or indifferent to safety or the environment, did
14:24 15 you, sir?

14:24 16 A. No, sir, I did not.

14:24 17 Q. I think Mr. Herman asked you about your experience before
14:24 18 you went out there on April 16. I take it on the day of
14:24 19 April 20, that was the first negative pressure test you had
14:24 20 actually observed, was it not?

14:24 21 A. That's correct.

14:24 22 Q. You had no detailed training in connection with the
14:24 23 negative pressure test before that, did you, sir?

14:24 24 A. No, sir, I did not.

14:24 25 Q. During the time that you were -- let's go back to earlier

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14:24 1 that day. I think Mr. Brock asked you about two meetings, a
14:24 2 pre-tour meeting at 11:00 and another meeting, a pre-task
14:25 3 meeting, between 2:30 and 3:00 p.m. Do you have those meetings
14:25 4 in mind?

14:25 5 A. Yes, sir.

14:25 6 Q. Was Mr. Kaluza at both of those meetings?

14:25 7 A. Yes, sir, I believe he was.

14:25 8 Q. And I think you said there were -- at least the pre-tour
14:25 9 meeting, Mr. Wyman Wheeler, the toolpusher was there, and some
14:25 10 other Transocean folks were there as well, correct?

14:25 11 A. That's correct.

14:25 12 Q. Now, at the 2:30 to 3:00 meeting, isn't it the case that
14:25 13 Mr. Kaluza asked Leo Lindner of M-I SWACO how they should set
14:25 14 up the procedures for the negative pressure test; isn't that
14:25 15 true?

14:25 16 A. I don't know that Mr. Kaluza asked Mr. Lindner to explain
14:25 17 how to set up the negative test, no.

14:25 18 Q. It is true, though, that Mr. Lindner at that meeting gave
14:25 19 an outline of those procedures to the folks in attendance,
14:25 20 didn't he, sir?

14:25 21 A. Yes, sir, he did.

14:25 22 Q. Are you aware also that BP -- the BP company men got
14:25 23 advice from Mr. Lindner to use the loss circulation material as
14:26 24 a spacer in connection with the negative pressure test? Are
14:26 25 you aware of that?

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14:26 1 A. I know that there was a discussion between Mr. Lindner and
14:26 2 one of the well site leaders -- and I don't recall which well
14:26 3 site leader it was -- on whether or not to use the spacer. I
14:26 4 wouldn't characterize that as advice.

14:26 5 Q. And they decided to go forward with the LCM as the spacer,
14:26 6 did they not?

14:26 7 A. The LCM was pumped as a spacer, yes, sir.

14:26 8 Q. And there was no discussion in the meeting, in the
14:26 9 conversation that you witnessed, of whether that loss
14:26 10 circulation material might actually clog either the drill pipe
14:26 11 or the kill line, was there?

14:26 12 A. No, sir.

14:26 13 Q. I take it you -- actually, strike that.

14:26 14 In connection with -- in response to Mr. Brock's
14:26 15 question, I think you testified about the pressure and how they
14:26 16 were drilling off pressure, it went back up and they tried
14:26 17 certain things. Do you recall that testimony generally?

14:26 18 A. During the negative test?

14:26 19 Q. Yes.

14:26 20 A. Yes, sir.

14:26 21 Q. And there was a discussion that there might be an
14:27 22 explanation of the so-called U-tubing effect, was there not?

14:27 23 A. Yes, there was.

14:27 24 Q. During that time period, you were trying to learn, weren't
14:27 25 you?

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14:27 1 A. Yes, sir.

14:27 2 Q. So you were asking questions of the crew and the well site
14:27 3 leader during the course of the negative pressure test, were
14:27 4 you not?

14:27 5 A. I was, yes, sir.

14:27 6 Q. And they were doing the best they could to answer your
14:27 7 questions, weren't they?

14:27 8 A. Yes, sir, they would.

14:27 9 Q. And at all times that you witnessed the negative pressure
14:27 10 test, is it fair to say that the Transocean drill crew paid
14:27 11 attention and was trying to solve the problem?

14:27 12 A. Yes, sir, I will agree with that, yes.

14:27 13 Q. They took their jobs very seriously, didn't they, sir?

14:27 14 A. Yes, sir, I will agree with that.

14:27 15 Q. No one, no one that day, whether it was anyone on the
14:27 16 Transocean drill crew or the well site leader said to you that
14:27 17 they thought the well was flowing, did they?

14:27 18 A. No, sir.

14:28 19 Q. Now, you have testified that Mr. Anderson gave you the
14:28 20 explanation of what you called the bladder effect. Do you
14:28 21 recall that testimony generally?

14:28 22 A. Yes, sir.

14:28 23 Q. Now, you're not actually sure who brought up that phrase,
14:28 24 are you, sir?

14:28 25 A. I'm not actually sure who coined the phrase bladder

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1 effect. The origin of the explanation of what's now being
2 termed the bladder effect came from Mr. Anderson.

3 Q. You're not sure who came up with it though, who -- well,
4 strike that.

5 You're not sure who brought up the phrase to begin
6 with, are you, sir?

7 A. I'm not sure who brought up the phrase bladder effect.
8 I'm telling you that the explanation of what is now being
9 called the bladder effect came from Jason Anderson.

10 MR. BRIAN: Let's put up deposition page 245, line 14
11 through 246, line 10.

12 BY MR. BRIAN:

13 Q. You testified, did you not:

14 "QUESTION: Annular element would transmit pressure.
15 This was normal since kill line was open. This did not
16 make sense. Is that you?"

17 "MR. BROCK: Object to form.

18 "ANSWER: Okay. Just to clarify around this --

19 "QUESTION: Okay.

20 "ANSWER: -- the toolpusher, Jason --

21 "QUESTION: Right.

22 "ANSWER: -- gave me an explanation of how the
23 pressure would transmit through the annular element, and
24 you would, in turn, see that on the drill pipe. At some
25 point, I don't know where this -- I heard this on the rig,

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14:30 1 this bladder effect. I don't know if it came from Jason
14:30 2 or someone else, but that's my memory of it. I know
14:30 3 that's -- that's what it's being referred to, is -- the
14:30 4 bladder effect is describing this."

14:30 5 MR. BRIAN: Now let's put up deposition page 556,
14:30 6 line 22.

14:30 7 MR. BROCK: Well, what's the question on that one?

14:30 8 MR. BRIAN: I'm sorry?

14:30 9 All of these are impeachment, Your Honor.

14:30 10 THE COURT: Well, that seemed to be consistent with
14:30 11 what the witness just said on the witness stand.

14:30 12 MR. BRIAN: Okay.

14:30 13 THE COURT: Unless there's more. I haven't seen the
14:30 14 rest of it.

14:30 15 BY MR. BRIAN:

14:30 16 Q. Well, would you agree -- let me just say then: It is your
14:30 17 testimony, is it not, then, that you're not sure who brought up
14:30 18 the phrase to begin with. Is that true?

14:30 19 A. I'm not sure who brought up the name bladder effect. The
14:30 20 origin and the explanation of this phenomenon came from Jason
14:31 21 Anderson.

14:31 22 Q. And then you asked Mr. Kaluza if it was possible, correct?

14:31 23 A. Correct.

14:31 24 Q. And he agreed, did he not?

14:31 25 A. He said that it was possible, yes.

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14:31 1 MR. BRIAN: Let me put up -- let's pull up

14:31 2 TREN-759.1.1.T0.

14:31 3 BY MR. BRIAN:

14:31 4 Q. Now, this is an e-mail from Mr. Kaluza on April 25, 2010.

14:31 5 You did not get this e-mail, did you, sir?

14:31 6 A. I did not, no.

14:31 7 Q. Okay. So here's my question.

14:31 8 MR. BROCK: Objection, foundation.

14:31 9 MR. BRIAN: Here's my question, Your Honor.

14:31 10 BY MR. BRIAN:

14:31 11 Q. When the conversation took place on April 20, did

14:31 12 Mr. Kaluza take notes -- did you see him take notes about the

14:31 13 bladder effect when you were discussing it with Mr. Anderson

14:31 14 and Mr. Kaluza?

14:31 15 A. No, sir, I did not see him taking notes.

14:31 16 Q. Is the explanation that is given by Mr. Kaluza in

14:31 17 TREN-759.1.1.T0, in which he never mentions Jason Anderson, is

14:32 18 that more detailed than the explanation that Jason Anderson

14:32 19 gave you on April 20?

14:32 20 MR. BROCK: I'm going to object to that on

14:32 21 foundation. This is not a document that he has seen, it was

14:32 22 not sent to him. He is here as a fact witness to testify as to

14:32 23 what he saw and heard that night.

14:32 24 THE COURT: I think it's a proper question.

14:32 25 I guess you're asking him to read this --

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14:32 1 MR. BRIAN: Yes.

14:32 2 THE COURT: -- and compare it to what he heard
14:32 3 Mr. Anderson say that night?

14:32 4 MR. BRIAN: Correct.

14:32 5 BY MR. BRIAN:

14:32 6 Q. Take a look at this.

14:32 7 THE COURT: If you can do that, sir. Go ahead and
14:32 8 read that.

14:32 9 BY MR. BRIAN:

14:32 10 Q. I will rephrase my question when you are done reading it.

14:33 11 A. Okay.

14:33 12 Q. Did Mr. Anderson offer his explanation that day with as
14:33 13 much detail as Mr. Kaluza did in that e-mail?

14:33 14 A. No, sir, I can't say it had as much detail as this e-mail
14:33 15 does, no. It was more in general terms of how this bladder
14:33 16 effect -- or what's being called the bladder effect now --
14:33 17 would work.

14:33 18 Q. Now, you have testified about Mr. Kaluza. You had a
14:33 19 conversation with Mr. Vidrine later, before you went to bed,
14:34 20 sometime between 8:30 and 9:00?

14:34 21 A. Yes, sir.

14:34 22 Q. In which he said everything was fine?

14:34 23 A. I asked him how the negative test went. And he said
14:34 24 everything was fine or good, I don't remember the exact words,
14:34 25 and that we were moving on to the displacement.

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14:34 1 Q. Had Mr. Vidrine come down to the driller's shack while the
14:34 2 negative pressure test was ongoing that day before you left?

14:34 3 A. Yes, Mr. Vidrine was in the shack while I was up there
14:34 4 just prior to me leaving.

14:34 5 Q. And he participated in discussions with the crew about
14:34 6 what they were seeing on the negative pressure test as well,
14:34 7 correct?

14:34 8 A. From the short time that I was there and Mr. Vidrine were
14:34 9 there at the same time, yes, he was discussing with the crews
14:34 10 what was going on, yes.

14:34 11 Q. And those discussions at the time you were there had the
14:34 12 same degree of seriousness and people paying attention as you
14:34 13 had seen when Mr. Kaluza was there, correct?

14:34 14 A. Yes, sir.

14:34 15 Q. And the crew was taking their job very seriously, weren't
14:34 16 they, sir?

14:34 17 A. Always, yes, sir.

14:34 18 Q. Now, did Mr. Kaluza -- strike that.

14:35 19 Were you aware that, at the time of the negative
14:35 20 pressure test, two gentlemen named David Sims and Mr. O'Bryan
14:35 21 were on the rig?

14:35 22 A. Yes, sir.

14:35 23 Q. Did Mr. Kaluza tell you at any time during the negative
14:35 24 pressure test that he was leaving the driller's shack to go
14:35 25 talk to David Sims?

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14:35 1 A. Not to my recollection, no.

14:35 2 Q. Did he report back to you as to what he had discussed with
14:35 3 David Sims?

14:35 4 A. I didn't know he left to talk to Mr. Sims about anything.
14:35 5 So, no, he didn't report back to me.

14:35 6 Q. And I take it Mr. Vidrine did not tell you that he went
14:35 7 and placed a call to Mark Hafle, did he?

14:35 8 A. No, sir, I was not aware about that.

14:35 9 Q. And before you went to sleep somewhere between 8:30 and
14:35 10 9:00 p.m., I take it Mr. Vidrine never told you at 8:52 p.m.,
14:35 11 he had a conversation with Mr. Hafle in which Mr. Hafle told
14:35 12 him you can't have 1400 psi on the drill pipe and zero psi
14:36 13 pressure on the kill line. Mr. Vidrine never told you that,
14:36 14 did he, sir?

14:36 15 A. I was not aware of any phone call, no, sir. I was in bed.

14:36 16 Q. Now, as a part of your training as a well site leader of
14:36 17 the future, you were trained, were you not, that if you had a
14:36 18 concern as a well site leader, it's good practice to call
14:36 19 someone with -- one of the engineers onshore. You were trained
14:36 20 to do that, were you not, sir?

14:36 21 A. Yes, sir, I think that's a good practice.

14:36 22 Q. And there's somebody on call 24 hours a day, seven days a
14:36 23 week in Houston at BP to take those calls, isn't there, sir?

14:36 24 A. Yes, sir, there is.

14:36 25 Q. I think you had a conversation, did you not, on the

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14:36 1 *Damon Bankston* with Joe Keith, the mud logger. Correct?

14:36 2 A. Yes, sir.

14:36 3 Q. You talked about what had happened, right?

14:37 4 A. In general terms, yes.

14:37 5 Q. And he told you that, from what he was observing,
14:37 6 everything looked fine. Isn't that what he said?

14:37 7 A. To the best of my recollection, yes.

14:37 8 MR. BRIAN: Nothing further, Your Honor.

14:37 9 THE COURT: Halliburton?

14:37 10 MR. HILL: Your Honor, Halliburton has no questions.

14:37 11 THE COURT: All right. BP?

14:37 12 MR. BROCK: No follow-up, Your Honor.

14:37 13 THE COURT: Thank you, sir.

14:37 14 Call your next witness, Mr. Brock.

14:37 15 MR. BROCK: Your Honor, our next witness is
14:37 16 Dr. David Lewis. I will step out and see if I can locate him.

14:37 17 THE COURT: Let's take about a 10-minute recess while
14:37 18 we switch witnesses.

14:37 19 (Recess.)

14:54 20 THE COURT: Please be seated, everyone.

14:54 21 Next witness.

14:54 22 MR. KEEGAN: Your Honor, we have David Lewis.

14:54 23 THE COURT: All right.

14:54 24 DAVID LEWIS,

14:54 25 having been duly sworn, testified as follows:

14:54 1 **THE DEPUTY CLERK:** State your full name and correct
14:54 2 spelling for the record, please.

14:54 3 **THE WITNESS:** David Bradley Lewis, D-A-V-I-D,
14:54 4 B-R-A-D-L-E-Y, L-E-W-I-S.

14:54 5 **MR. DEGRAVELLES:** Yes, Judge, John deGravelles for
14:54 6 the Plaintiffs' Steering Committee.

14:54 7 We would like to object to Dr. Lewis' testimony
14:54 8 inasmuch as it covers a subject matter which was covered by
14:54 9 Dr. Bourgoyne, which is the long string and liner issue. The
14:55 10 same issues that Dr. Lewis discusses in his report and in his
14:55 11 deposition are covered, and I can get you the page numbers if
14:55 12 you need it from Dr. Bourgoyne's rebuttal report. Not only was
14:55 13 it in his rebuttal report, but he was questioned about it
14:55 14 during his testimony. It seems to me this is patently
14:55 15 cumulative, and he should not be allowed to testify.

14:55 16 **THE COURT:** Okay. Do you want to respond to that?

14:55 17 **MR. KEEGAN:** I do, Your Honor --

14:55 18 **THE COURT:** Obviously, I haven't seen his deposition,
14:55 19 but I have seen his report, and it does seem that this was
14:55 20 something that was covered with Dr. Bourgoyne.

14:55 21 **MR. KEEGAN:** Your Honor, I think that Mr. Lewis'
14:55 22 testimony and report will provide additional and distinct
14:55 23 evidence, separate from what Dr. Bourgoyne testified to earlier
14:56 24 this week. He goes into burst loads, collapse loads, annular
14:56 25 pressure buildup, materials strength components that

14:56 1 Dr. Bourgoyne's report or testimony did not cover, and
14:56 2 establishes that either the long string or the liner -- a
14:56 3 decision that's been challenged by numerous parties in this
14:56 4 case -- were appropriately engineered and designed.

14:56 5 And we'll keep it very short.

14:56 6 **THE COURT:** All right. I'll let him testify, but
14:56 7 let's keep it short because we are now, again, getting multiple
14:56 8 witnesses for the same party on the same subject.

14:56 9 Go ahead.

14:56 10 **MR. DEGRAVELLES:** Judge, one more point. His report
14:56 11 contains a rebuttal portion that is in rebuttal to
14:56 12 Mr. Pritchard, who was our drilling expert whose report and
14:56 13 testimony we withdrew. So at the very least, we would like to
14:56 14 strike that portion of his report that deals with rebuttal of
14:56 15 Mr. Pritchard.

14:57 16 **MR. KEEGAN:** We are happy to strike that portion.

14:57 17 **THE COURT:** Very well. You all can work out an
14:57 18 agreement to redact that out. Okay.

14:57 19 **MR. KEEGAN:** Your Honor, may I proceed?

14:57 20 **THE COURT:** Yes.

14:57 21 **MR. KEEGAN:** Good afternoon. Chris Keegan on behalf
14:57 22 of BP for Mr. Lewis' direct examination.

14:57 23 **VOIR DIRE**

14:57 24 **BY MR. KEEGAN:**

14:57 25 **Q.** Mr. Lewis, could you briefly describe your education to

DAVID LEWIS - VOIR DIRE

14:57 1 the Court.

14:57 2 A. Yes. I have a bachelor's and master's degree in civil
14:57 3 structural engineering from the University of Missouri at Rolla
14:57 4 in addition to graduate courses in engineering mechanics.

14:57 5 Q. Mr. Lewis, how long have you been involved in the oil and
14:57 6 gas industry?

14:57 7 MR. KEEGAN: And I would like to call up
14:57 8 TREN-8098.7.2 from your report.

14:58 9 A. Yes. I've been involved in it over 30 years.

14:58 10 BY MR. KEEGAN:

14:58 11 Q. Can you describe for the Court some of your -- the work
14:58 12 you have done in the last 30 years.

14:58 13 A. My experience is around casing and tubing design, whether
14:58 14 it be high pressure high temperature, extended reach, deep
14:58 15 water, pretty much the engine mechanics associated with extreme
14:58 16 well design.

14:58 17 Q. Who did you work for after receiving your master's degree?

14:58 18 A. My first employer was the Mobil Oil Corporation.

14:58 19 Q. How long did you work for Mobil Oil Corporation?

14:58 20 A. I was at Mobil for 20 years.

14:58 21 Q. What was your title when you left ExxonMobil at that time
14:58 22 in 2000?

14:58 23 A. I was the manager of the drilling technology group.

14:58 24 MR. KEEGAN: If you would pull up TREN-8098.27.1,
14:58 25 please.

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14:58 1 BY MR. KEEGAN:

14:58 2 Q. Can you briefly describe to the Court your
14:58 3 responsibilities as manager of the well construction technology
14:58 4 group at ExxonMobil.

14:58 5 A. We pretty much took care of all of the drilling and
14:59 6 completion aspects of Mobil and Exxon -- ExxonMobil on a
14:59 7 worldwide basis. Any time there was a problem, they would
14:59 8 actually come to the technology group to have that problem
14:59 9 solved, so we supported the corporation on a worldwide scale.

14:59 10 Q. Was part of your responsibility to design deepwater wells?

14:59 11 A. Yes, it was.

14:59 12 Q. What did you do after you have left ExxonMobil?

14:59 13 A. I became a consultant for three years.

14:59 14 Q. Who are you currently employed by?

14:59 15 A. Currently, I'm employed by Blade Energy Partners.

14:59 16 Q. What is your title at Blade Energy Partners?

14:59 17 A. I'm currently president and CEO of Blade.

14:59 18 Q. What type of work do you do at Blade Energy Partners?

14:59 19 A. The engineers at Blade continue to do the same thing we
14:59 20 did when we were at ExxonMobil. We pretty much do extreme well
14:59 21 design, troubleshooting, problem solving, all of the upstream
14:59 22 oil and gas sector.

14:59 23 Q. Do you design production casings for oil companies?

14:59 24 A. Yes, we do.

14:59 25 Q. How many production casings do you think you have designed

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15:00 1 at Blade?

15:00 2 A. Really, dozens. Not only domestic in the Gulf of Mexico
15:00 3 but on a worldwide scale.

15:00 4 Q. In addition to being president and CEO of Blade Energy,
15:00 5 are you involved in any industry committees?

15:00 6 A. Yes, I'm involved in two API committees, the American
15:00 7 Petroleum Institute, API Committee 5, which is tubulars, and
15:00 8 API Committee 16, which is drill-through equipment or well
15:00 9 control equipment.

15:00 10 MR.KEEGAN: I want to pull up TREN-8098.30.1, also
15:00 11 from your CV.

15:00 12 BY MR.KEEGAN:

15:00 13 Q. Can you explain to the Court what Committee 5 of the
15:00 14 American Petroleum Institute does.

15:00 15 A. Committee 5 takes care of anything that's pipe. If it's a
15:00 16 pipe and oil and gas-related, Committee 5 gets involved with
15:00 17 it. Casing, tubing, production casing, pipelines, drill pipe,
15:00 18 everything.

15:00 19 Q. Mr. Lewis, do you have any publications that are relevant
15:00 20 to your testimony here today?

15:00 21 A. Yes. I've published numerous publications over the years
15:00 22 relative to casing and tubular design as well as coauthored a
15:00 23 textbook by SPE on advanced casing and drilling technologies.

15:01 24 MR.KEEGAN: And if we pull up 8098.31.1.
25

DAVID LEWIS - VOIR DIRE

15:01 1 BY MR. KEEGAN:

15:01 2 Q. You were a contributing author to that SPE textbook on
15:01 3 advanced drilling and well technology?

15:01 4 A. Yes. I wrote the chapter on advanced casing and tubular
15:01 5 design.

15:01 6 MR. KEEGAN: Your Honor, at this time I would tender
15:01 7 Mr. Lewis as an expert in tubular casing design and
15:01 8 engineering.

15:01 9 THE COURT: All right. There have been no motions
15:01 10 with respect to him, has there?

15:01 11 MR. KEEGAN: No, Your Honor.

15:01 12 THE COURT: He is accepted.

15:01 13 DIRECT EXAMINATION

15:01 14 BY MR. KEEGAN:

15:01 15 Q. Mr. Lewis, what were you asked to do by BP in this case?

15:01 16 A. Really, to evaluate the production casing design of the
15:01 17 Macondo well in terms of the long-string option and the
15:01 18 liner-and-tieback option.

15:01 19 Q. What did that engineering review entail?

15:01 20 A. Pretty much what you have to do in any type of design is
15:01 21 calculate the strength associated with a particular casing
15:01 22 design, production casing design, and calculate the loads. And
15:01 23 you always want to make sure that the strength is greater than
15:01 24 loads, and we do that by calculating a factor of safety between
15:01 25 the two.

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15:01 1 Q. Have you submitted a report in this case?

15:02 2 A. Yes, I have.

15:02 3 MR. KEEGAN: Pull up TREX-8098.1.1.

15:02 4 BY MR. KEEGAN:

15:02 5 Q. Mr. Lewis, is this a copy of your report, the front page
15:02 6 of your report?

15:02 7 A. Yes, it is.

15:02 8 Q. Have you had the opportunity to review your report
15:02 9 recently?

15:02 10 A. Yes, I have.

15:02 11 Q. Do you have any changes that you would like to make to
15:02 12 your report?

15:02 13 A. No.

15:02 14 Q. Can you briefly tell the Court what work you did to
15:02 15 prepare this report.

15:02 16 A. What you do is actually look at the current design offered
15:02 17 by BP for the production casing, and based on the design
15:02 18 parameters, design assumptions BP did, we actually more or less
15:02 19 redesigned the entire production casing from scratch, looking
15:02 20 at the long-string as well as the liner-and-tieback option.

15:02 21 Q. Fair to say that you did an independent analysis of the
15:02 22 basis of design for multiple production casing options on this
15:02 23 well?

15:02 24 A. That's correct. We pretty much did it all from scratch,
15:02 25 all over again.

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15:02 1 MR. KEEGAN: At this time, Your Honor, I would like
15:02 2 to move Mr. Lewis' report into evidence subject to our
15:02 3 discussions with the PSC about redacting.

15:03 4 THE COURT: All right. It will be admitted.

15:03 5 Did you give it a number?

15:03 6 MR. KEEGAN: 8098, TREX-8098.

15:03 7 THE COURT: Thank you.

15:03 8 BY MR. KEEGAN:

15:03 9 Q. Mr. Lewis, let's do a little bit of background very
15:03 10 briefly here.

15:03 11 MR.KEEGAN: If we can pull up D-4363.4.

15:03 12 BY MR.KEEGAN:

15:03 13 Q. I want to talk about different pieces of a casing or well
15:03 14 design.

15:03 15 MR. KEEGAN: Can we pull up .4 of the animated.

15:03 16 BY MR. KEEGAN:

15:03 17 Q. Let's start up here at the top of the well, Mr. Lewis.
15:03 18 Can you explain to the Court what that 36-inch drive pipe is?

15:03 19 A. Yeah. The 36-inch at the top is kind of what we call a
15:03 20 jet stream or drive pipe. That's a large-diameter piece of
15:03 21 pipe that actually acts as the foundation or the support
15:04 22 structure for the overall well.

15:04 23 MR. KEEGAN: There we go. That's D-4363.4.

15:04 24 BY MR. KEEGAN:

15:04 25 Q. Can you explain to the Court what the conductor-casing

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15:04 1 string is.

15:04 2 A. Yeah. That's a secondary string we actually used. It's
15:04 3 actually drilled and cemented in place to offer additional
15:04 4 structural strength to the 36-inch conductor, drive pipe.

15:04 5 Q. After that drive pipe and conductor-casing string, you had
15:04 6 a series of strings identified as "intermediate casing
15:04 7 strings." What are those?

15:04 8 A. The intent of intermediate casing strings -- also called
15:04 9 drilling casings strings -- are just strings of pipe that allow
15:04 10 us to reach the reservoir.

15:04 11 Q. Is there a difference in how the 36-inch and 28-inch are
15:04 12 installed versus those intermediate casings strings?

15:04 13 A. Yes. Once the 22-inch goes into place, then the BOP is
15:04 14 actually placed on the wellbore. And at that point in time,
15:04 15 the wellbore actually turns into a pressure vessel that we
15:04 16 design for.

15:04 17 Q. The last string you have there is the long-string
15:05 18 production casing. Can you explain to the Court what you mean
15:05 19 when you say "production casing."

15:05 20 A. Yes. The production casing is a pipe that actually runs
15:05 21 from the wellhead at the top all the way down to the reservoir
15:05 22 at the bottom. It serves basically as the first primary
15:05 23 barrier against a potential -- potential problem once we turn
15:05 24 the well on and produce the well.

15:05 25 This current one shows a 9 7/8 by 7-inch, which means

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1 we have a 9 7/8-inch OD pipe at the top with a small transition
2 piece called a "crossover" here that transitions to a 7-inch
3 diameter pipe at the bottom.

4 Q. Is that the production casing that you evaluated in your
5 expert report?

6 A. Yes, it is.

7 Q. I would like to talk now about how you design a -- develop
8 a casing design, if we can.

9 What do you need to understand when you are
10 developing a casing design?

11 A. The two major things you actually need to learn or
12 understand is strength and load. And what you want to make
13 sure is that the strength is always greater than the load in
14 any type of design.

15 MR.KEEGAN: If we look at TREN-8098.11.1, please.

16 BY MR.KEEGAN:

17 Q. Let's talk about the strength side of this formula first.

18 How do you analyze the strength of the casing?

19 A. The strength of the casing is kind of composed of two
20 parts: The material properties, what's it made out of, steel,
21 aluminum, plastic, or whatever; and the dimensional properties,
22 how big is it, how thick is the wall, all the geometries.

23 And from those two more extensive parameters, we can
24 determine the strength of the pipe.

25 Q. Can you give the Court an example of the designation of

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15:06 1 strength of pipe; for example, what was installed on the bottom
15:06 2 of the Macondo?

15:06 3 A. Yes. The Macondo well was 9 7/8, 6280Q125 crossed over to
15:06 4 7-inch, 32-pound, high-collapse Q125. That's kind of a long
15:07 5 set of verbiage, but that kind of lays out the size, the weight
15:07 6 and pounds per foot and the grade of the pipe that's in the
15:07 7 well.

15:07 8 Q. Mr. Lewis, that was a lot of letters and numbers together,
15:07 9 so let me see if I can break that down.

15:07 10 The 7-inch is the size of the pipe?

15:07 11 A. The diameter, yes.

15:07 12 Q. 32 pounds per foot is the weight or -- weight of the pipe?

15:07 13 A. That's correct.

15:07 14 Q. And then the HCQ125 is the quality of the steel?

15:07 15 A. That's correct.

15:07 16 Q. That's the strength side of the equation. Let's look at
15:07 17 the load side of the equation.

15:07 18 MR.KEEGAN: And if we can pull up D-4858.

15:07 19 BY MR.KEEGAN:

15:07 20 Q. And explain to the Court the two loads that you are
15:07 21 analyzing in determining the casing design.

15:07 22 A. Yeah, two things we are actually interested in is what we
15:07 23 call "burst loads," where we have some type of internal
15:07 24 pressure inside the casing and this internal pressure tries to
15:07 25 burst the casing or rupture it from the inside out.

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15:07 1 "Collapse load" is pretty much the opposite of a
15:07 2 burst load. We have the pipe, the casing itself, and we have
15:07 3 some type of external load on the outside trying to crush or
15:08 4 collapse in on the pipe.

15:08 5 So these are the two basic failure modes we actually
15:08 6 look at in terms of casing design.

15:08 7 Q. Did you analyze both those loads for this casing design?

15:08 8 A. Yes, I did.

15:08 9 Q. Let's focus on the collapse load.

15:08 10 What types of collapse loads are you looking at when
15:08 11 you do your analysis?

15:08 12 A. There's two types of collapse loads on production casing.
15:08 13 There's what's known as the "end-of-life abandonment collapse,"
15:08 14 which is a load that's imposed on a casing when the reservoir
15:08 15 pressure has been depleted.

15:08 16 There's also the second -- another load that's looked
15:08 17 at is known as the "annular pressure buildup load," and that
15:08 18 occurs due to the heating of the well and having fluid trapped
15:08 19 between two strings of pipe. And that fluid tries to expand,
15:08 20 which will cause it to more or less collapse in on the inner
15:08 21 casings.

15:08 22 Q. Mr. Lewis, do you have a demonstrative that shows the
15:08 23 loads for annular pressure buildup?

15:08 24 A. Yes, I do.

15:08 25 MR. KEEGAN: Can we pull up D-4859, please.

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15:08 1 **THE WITNESS:** What we show right here, this is the
15:08 2 production tubing, which we probably haven't really talked much
15:09 3 about. This is the conduit that the hydrocarbons flow through
15:09 4 from the bottom of the well to the top of the wellbore. The
15:09 5 production casing, which is the blue -- this is our 9 7/8 by
15:09 6 7-inch right here. This gray is our drilling casing or
15:09 7 intermediate casing.

15:09 8 What you see at different annuli between the
15:09 9 casing strings -- this is called the B annulus, this is called
15:09 10 the A annulus.

15:09 11 So as hydrocarbons flow and heats the system up,
15:09 12 the fluid that's in between the B annulus has no place to
15:09 13 physically go as it heats up. Therefore, it tries to expand.
15:09 14 Since there's no outlet for that fluid to move to, it will put
15:09 15 a very high burst load on the drilling casing and a very high
15:09 16 collapse load on the production casing.

15:09 17 **BY MR. KEEGAN:**

15:09 18 **Q.** That's one of the collapse loads that you analyzed in your
15:09 19 analysis?

15:09 20 **A.** Yes.

15:09 21 **Q.** Let's talk about factor of safety.

15:09 22 **MR.KEEGAN:** If we pull up TREN-8098.11.2.

15:09 23 **BY MR.KEEGAN:**

15:09 24 **Q.** Can you explain what looks to be a relatively simple
15:10 25 formula for the Court, please.

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15:10 1 A. Yeah. As we talked about, we always want to make sure
15:10 2 that strength is greater than load, which dictates a proper
15:10 3 design. So the factor of safety is nothing more than the
15:10 4 strength value divided by the load value, which is kind of a
15:10 5 numerical number that tells you how much greater is the
15:10 6 strength over the load.

15:10 7 Q. Mr. Lewis, did you analyze the factor of safety for the
15:10 8 production casing in the design of the Macondo well?

15:10 9 A. Yes, I did.

15:10 10 Q. What modeling program did you use to conduct your review
15:10 11 of that design?

15:10 12 A. Yeah. We used an industry-standard modeling program,
15:10 13 called WELLCAT, and Stress Check as well as internal
15:10 14 proprietary software as well.

15:10 15 Q. Did you reach an opinion about the long-string casing
15:10 16 design of the Macondo production casing?

15:10 17 A. Yes. Basically, the long-string design at Macondo was
15:10 18 adequately designed. In fact, the factors of safety are all
15:10 19 above allowable. You could actually say the Macondo long
15:10 20 string is actually oversized.

15:11 21 Q. Let's look briefly at 8098.19.1 from your report.

15:11 22 Are these the factors of safety for the production
15:11 23 casing as designed for the Macondo well?

15:11 24 A. Yes, they are.

15:11 25 Q. You said that those factors of safety are in excess of

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15:11 1 industry standards. How do you know that?

15:11 2 A. That's correct.

15:11 3 Well, Blade does an awful lot of these designs for
15:11 4 operators around the world, so we see what different operators
15:11 5 actually use. We have our own in-house set of factors of
15:11 6 safety we like to see. They also are higher than the BP
15:11 7 factors of safety required within BP as well.

15:11 8 **MR.KEEGAN:** If we look briefly at TREN-8098.19.2,
15:11 9 please.

15:11 10 **BY MR.KEEGAN:**

15:11 11 **Q.** Mr. Lewis, are these Blade's recommended factors of safety
15:11 12 for design?

15:11 13 **A.** Yes, they are.

15:11 14 **Q.** For the production casing, the calculated factors of
15:11 15 design were all higher than Blade's recommended?

15:11 16 **A.** That's correct. Which means the design is adequate or you
15:11 17 could actually it's say slightly overdesigned.

15:12 18 **Q.** Did you also examine the liner that was proposed to be
15:12 19 used in the Macondo well?

15:12 20 **A.** Yes, we did.

15:12 21 **Q.** What was the factor of safety for that design?

15:12 22 **A.** They all were greater than the allowable.

15:12 23 **Q.** What does your analysis tell you about whether there is a
15:12 24 valid engineering reason or basis to challenge the design of
15:12 25 either the long string or the liner production casing?

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1 A. When you look at the factors of safety for the long
2 string, they all show that the factors of safety are greater
3 than the industry standards, greater than what BP requires, and
4 greater than what our company requires. So you basically
5 conclude that the design is actually adequate.

6 Q. What does your analysis tell you about the basis of design
7 for both the liner and the long string as compared to industry
8 standards?

9 A. Yeah, what we did, we looked at the long string and we
10 also looked at the liner and tieback openings as well. Both
11 designs were totally adequate. Both designs are used many
12 times in the industry, not only in the Gulf of Mexico but on
13 worldwide basis.

14 Q. Mr. Lewis, do you recall how many casing strings were
15 originally planned for the Macondo well by BP's internal team?

16 A. There were seven.

17 Q. Was one of those casing strings a contingency liner?

18 A. That's correct.

19 Q. What is a contingency liner?

20 A. Well, a contingency liner -- a liner is a piece of pipe
21 that doesn't actually go back to surface. It actually drops
22 out of or hangs out of the bottom of a previous casing string.
23 A contingency liner is kind of what the name implies, a
24 contingency. It may or may not be used.

25 When you drill exploration wells, there's always a

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1 lot of uncertainty relative -- around the loads you're going to
2 see, the events you are going to see. Therefore, you want to
3 make sure you have contingencies or additional casings that you
4 can put in the wellbore to reach the reservoir.

5 Q. Is it your opinion that having a contingency liner in a
6 wellbore plan is industry standard?

7 A. Yes. For exploration wells, you have to have contingency
8 liners. You would be foolish not to. You would be foolish to
9 try to drill a deepwater well in an exploration area without
10 some kind of contingency liner planned.

11 Q. They had seven or eight, counting the contingency liner in
12 the original plan.

13 How many casing strings did BP end up installing at
14 the Macondo well?

15 A. They installed nine strings.

16 Q. If we look at TREC-4166.15.1, does it surprise you that
17 the casing design as installed was different than the one that
18 BP had originally planned?

19 A. No. In fact, it would surprise me if it wasn't different
20 based on the fact that it's an exploration well.

21 Q. Mr. Lewis, we talked about long string versus liner. I
22 want to not necessarily talk about a liner with a tieback,
23 which is yet another option, but let's focus on the long string
24 and the liner.

25 MR. KEEGAN: If we can pull up D-4857, please.

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15:14 1 BY MR. KEEGAN:

15:14 2 Q. Mr. Lewis, can you tell me how many barriers to annular
15:15 3 flow a long string provides?

15:15 4 A. Yes. This left-hand side is the long string, as you see
15:15 5 the 9 7/8 crossed over to our 7-inch here. So we have one
15:15 6 barrier at the bottom for cement. We have a second barrier at
15:15 7 the top, which is what's known as a seal assembly, that sits
15:15 8 in the wellhead.

15:15 9 Q. How many barriers to annular flow does a liner provide?

15:15 10 A. The same number, two. You have the cement at the bottom,
15:15 11 and we have what's known as a liner top packer, which sits
15:15 12 right here, and that is the secondary barrier with a liner.

15:15 13 Q. Thank you, Mr. Lewis.

15:15 14 So both the liner and the long string have the same
15:15 15 number of barriers to annular flow?

15:15 16 A. That's correct.

15:15 17 Q. Have you had experience in your time at Mobil or your time
15:15 18 as an independent contractor or at Blade Energy in designing
15:15 19 both long strings or liners?

15:15 20 A. Yes, I have.

15:15 21 Q. In your opinion, are either a liner or a long string
15:16 22 acceptable for deepwater wells in the Gulf of Mexico?

15:16 23 A. They are both very viable, not only in the Gulf of Mexico,
15:16 24 but we do it worldwide. So it's pretty much one versus the
15:16 25 other. The long string has some advantages in terms of

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15:16 1 mechanical equipment and the APB issue as well. The long
15:16 2 string gets us out of that problem versus the liner kind of
15:16 3 puts us in that APB problem.

15:16 4 Q. Let's talk briefly about liners and long strings in the
15:16 5 Gulf of Mexico and then move on to your view on which is better
15:16 6 between a liner or a long string.

15:16 7 Did you have a chance to review Appendix O of BP's
15:16 8 Bly report?

15:16 9 A. Yes.

15:16 10 MR. KEEGAN: TREX-2.17.8.1, please, and .2, please.
15:16 11 There you go.

15:16 12 BY MR. KEEGAN:

15:16 13 Q. In your experience -- 30 years of experience designing
15:16 14 deepwater wells, is the representation in this chart about the
15:16 15 number of liners and long strings consistent with your
15:17 16 experience?

15:17 17 A. Yes. This chart shows 57 and 36, very representative. If
15:17 18 I was to guess, I would probably say more 50/50, I guess. But
15:17 19 that doesn't surprise me at all.

15:17 20 Q. I note here ExxonMobil, the fourth column over, indicates
15:17 21 that all of their wells in the area around the Mississippi
15:17 22 Canyon was a long string. Does that surprise you?

15:17 23 A. No.

15:17 24 Q. You mentioned briefly that you think the long string has
15:17 25 some advantages as compared to a liner. What are those

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15:17 1 advantages?

15:17 2 A. The long string has two advantages. Mainly, with the
15:17 3 liner and tieback, you have what's known as a polishable
15:17 4 receptacle on the seal assembly, which actually is a physical
15:17 5 attachment point between the liner and the tieback. Also with
15:17 6 a tieback situation, you're guaranteed to have an APB problem
15:17 7 in the well.

15:18 8 Q. Mr. Lewis, APB is annular pressure buildup, that slide we
15:18 9 looked at earlier?

15:18 10 A. Annular pressure buildup, that's correct.

15:18 11 Q. Can you mitigate for APB issues?

15:18 12 A. Yes, you can. There's a large number of different
15:18 13 mitigation ways we do. The way BP actually mitigated it was
15:18 14 actually the use of burst discs, ruptured discs.

15:18 15 Q. And you know that -- whether or not BP mitigated for
15:18 16 potential annular pressure buildup issues at the Macondo well?

15:18 17 A. Yes, they did.

15:18 18 Q. Did you review BP's annular pressure buildup mitigation
15:18 19 documents?

15:18 20 A. Yes, I did.

15:18 21 Q. In your opinion, did BP properly evaluate and mitigate
15:18 22 potential annular pressure buildup concerns with their design?

15:18 23 A. Yes.

15:18 24 Q. Mr. Lewis, if annular pressure buildup concerns are
15:18 25 properly mitigated, does the long string provide any other

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15:18 1 advantages, in your opinion?

15:18 2 A. The long string does not have the polishable receptacle
15:18 3 and seal assembly to connect the liner tieback. You don't have
15:18 4 that piece of equipment.

15:18 5 Typically on deepwater wells, the kind of general
15:19 6 rule is "keep it simple." So the less equipment you put
15:19 7 downhole, the better off you usually are.

15:19 8 Q. Mr. Lewis, as part of your analysis, did you did evaluate
15:19 9 and analyze the strength of the production casing in BP's well
15:19 10 design?

15:19 11 A. Yes, I did.

15:19 12 Q. As part of that analysis that you did -- was part of that
15:19 13 analysis that you did understanding -- let's start over.

15:19 14 Was understanding the strength of the production
15:19 15 casing a necessary part of your opinions that you reached in
15:19 16 this matter?

15:19 17 A. That's correct.

15:19 18 MR. KEEGAN: Can we take a look at D-4920, please.

15:19 19 BY MR. KEEGAN:

15:19 20 Q. Mr. Lewis, can you explain to the Court what you have
15:19 21 represented -- what you have put together on D-4920?

15:19 22 A. Yeah. What you see right here is more or less the two
15:19 23 different strings, the 7-inch, 32-pound C110, and the
15:19 24 9 7/8 62.80 pound per foot Q125, the two strings that were used
15:20 25 in the analysis, whether it be a long string or liner tieback.

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1 We have our burst pressures -- now, these are
2 actually strength values now -- and our collapse strengths.

3 What we have is kind of two members of our industry.
4 We have what's known as kind of the working pressure or the
5 rating associated with the material, as you can see, for the
6 burst and for the collapse. Then we have what's known as the
7 ultimate capacity, the ultimate burst and the ultimate
8 collapse.

9 We always design around the working pressure burst
10 right here. In fact, all the analysis, all the factors of
11 safety are based on the working pressure burst limit. But in
12 reality, you do know that you have a lot more capacity in terms
13 of its strength. And that's these numbers out here for burst
14 and out here for collapse.

15 Q. So, Mr. Lewis, if you had a pressure of 13,000 psi for the
16 7-inch 32-pound/foot C110, would that be sufficient to burst
17 that casing?

18 A. No. That pressure would be greater than the working
19 pressure, but it is not high enough to physically rupture the
20 casing.

21 Q. Okay. And that pressure value we are talking about,
22 that's not -- is that a static pressure, total pressure, or
23 pressure differential?

24 A. Yeah, it's a differential pressure. That's a good point
25 to bring out. It's always important to realize that it's the

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15:21 1 pressure on the inside minus the outside, or Delta P, as we
15:21 2 call it, differential pressure.

15:21 3 Q. Mr. Lewis, I notice on this chart that it says 7-inch
15:21 4 C110. BP installed 7-inch 32-pound HCQ110, correct?

15:21 5 A. That's correct. BP installed and said that the C110 --
15:21 6 they had installed what's known as a high-collapse Q125. The
15:21 7 high-collapse Q125 is a material that is actually stronger than
15:21 8 the C110. It has better material properties than C110 and is
15:21 9 actually more expensive than C110.

15:22 10 So if you were to more or less redo the analysis
15:22 11 based on the high-collapse Q125, all your factors of safety
15:22 12 would actually go up.

15:22 13 Q. So what about these burst pressures, collapse pressures?
15:22 14 Would they go up or down?

15:22 15 A. They would actually go up as well because these are all
15:22 16 strength values.

15:22 17 MR. KEEGAN: If we look back at TREX-8098.19.1,
15:22 18 please.

15:22 19 BY MR. KEEGAN:

15:22 20 Q. The factors of safety for the 7-inch here, would those go
15:22 21 up or go down?

15:22 22 A. It would actually go up based on the ultimate capacity.

15:22 23 MR. KEEGAN: Can we take a look at D-4919, please.

15:22 24 BY MR. KEEGAN:

15:22 25 Q. Mr. Lewis, thank you for your testimony today. I know

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15:22 1 that we covered a variety of different things, but does this
15:22 2 slide represent a summary of your opinions and your testimony
15:22 3 here today?

15:22 4 A. Yeah, it really does.

15:22 5 Both long string versus a liner and eventual tieback
15:22 6 is -- each option is acceptable. They both are adequately
15:22 7 designed. There's really no issues, there's no problems
15:23 8 associated with either option to go with.

15:23 9 Depending on the preference of the designer, the one
15:23 10 we use versus the other, they are both used extensively in the
15:23 11 Gulf of Mexico and on a worldwide scale.

15:23 12 **MR. KEEGAN:** Your Honor, I pass the witness.

15:23 13 **THE COURT:** Okay. Plaintiffs.

CROSS-EXAMINATION

15:23 14
15:23 15 **BY MR. DEGRAVELLES:**

15:23 16 Q. Good afternoon, Dr. Lewis. I'm John deGravelles. I
15:23 17 represent the Plaintiffs' Steering Committee, and I have you on
15:23 18 cross-examination.

15:23 19 First of all, a couple things that you are not. You
15:23 20 are not an expert in cementing; is that true?

15:23 21 A. That's correct.

15:23 22 Q. You are not an expert in well control?

15:23 23 A. That's correct.

15:23 24 Q. You do not offer an opinion in this case, do you, sir, as
15:23 25 to how the choice between long string and liner might have

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15:24 1 affected the cement job in this case? Is that true?

15:24 2 A. That's correct, sir.

15:24 3 Q. You do not consider and have no opinion as to the relative
15:24 4 ease or difficulty of performing the cement work in a liner
15:24 5 versus long string, correct?

15:24 6 A. That's correct.

15:24 7 Q. You have no opinion as to how the choice between long
15:24 8 string and liner might have affected the issue of risk of
15:24 9 contamination or cement, correct?

15:24 10 A. That's correct.

15:24 11 Q. You have no opinion as to how the choice between long
15:24 12 string and liner might affect the possible pump rates that
15:24 13 could be used, correct?

15:24 14 A. That's correct.

15:24 15 Q. And how those pump rates might affect the cement job,
15:24 16 correct?

15:24 17 A. That's correct.

15:24 18 Q. You have no opinion about whether long string or liner
15:24 19 might be a design you could rotate during the cement job,
15:24 20 correct?

15:24 21 A. That's correct.

15:24 22 Q. You have no opinion about how the long-string-versus-liner
15:24 23 issue might affect the weight of the cement to be used; is that
15:24 24 true?

15:24 25 A. Yes, sir.

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15:24 1 Q. You have no knowledge or opinion as to who made the
15:25 2 decision at BP or who made it, period, as between long string
15:25 3 and liner at the Macondo well, correct?

15:25 4 A. Yes.

15:25 5 Q. You have no knowledge or opinion about how that decision
15:25 6 was made or over what period of time that decision was made,
15:25 7 correct?

15:25 8 A. Yes.

15:25 9 Q. You have no opinion as to why long string was chosen; is
15:25 10 that true?

15:25 11 A. Yes.

15:25 12 Q. You have no knowledge or opinion as to what factors were
15:25 13 considered or not considered in making the decision, correct?

15:25 14 A. Yes.

15:25 15 Q. You have no opinion as to the merits or lack of merits
15:25 16 regarding the decision-making process that was used in deciding
15:25 17 to do long string versus liner, correct?

15:25 18 A. That's correct.

15:25 19 Q. I understand you did not evaluate any of the casing points
15:25 20 above the production casing?

15:25 21 A. That's correct.

15:25 22 Q. And you did not evaluate various formation pore pressures
15:25 23 or frac gradients and how they played into the decision of long
15:25 24 string versus liner, correct?

15:25 25 A. That's correct.

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15:25 1 Q. You did not consider whether, as a part of the
15:25 2 long-string-versus-liner issue, where the formation levels in
15:26 3 the open hole section were, correct?

15:26 4 A. That's correct.

15:26 5 Q. These things that I have talked about, which are cement
15:26 6 issues and bore stability and well control, those are issues
15:26 7 that should be considered in whether you use long string or
15:26 8 liner, correct?

15:26 9 A. Those are issues that are relative around the borehole
15:26 10 design. Yes. I only focused on the tubular design of the
15:26 11 well.

15:26 12 Q. I understand, and that's kind of my point. These issues
15:26 13 are important. When you are the engineer actually on the job
15:26 14 doing the decision between long string and liner, you want to
15:26 15 consider these other issues of bore stability, cement, where
15:26 16 the formations are, and how that should influence your decision
15:26 17 of long string versus liner, correct?

15:26 18 A. Well, you would consider any type of operational concerns,
15:26 19 rig issues. Any type of concerns you would have would be part
15:26 20 of the decision-making process, I would think, yes.

15:27 21 Q. These are -- these kinds of issues are issues that you did
15:27 22 not consider in your very, very narrow opinion, correct?

15:27 23 A. Yes. I looked at the structural integrity and the
15:27 24 structural reliability of the design.

15:27 25 Q. But in a real job where you are considering all of these

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15:27 1 issues, you have people who would decide how those issues
15:27 2 affect the long-string-versus-liner issue, correct?

15:27 3 A. You would have other people involved with the wellbore
15:27 4 design issues, say, the borehole stability, well control,
15:27 5 cementing fluids. Those type of people would be involved, yes.

15:27 6 Q. But that's not something that you would do typically?

15:27 7 A. No, I would not do that.

15:27 8 Q. Do I understand that you did not consider whether PBRs
15:27 9 were being considered for run on the Macondo well?

15:27 10 A. Well, if you run a liner, you have a polishable receptacle
15:27 11 in the liner. So if you ran the liner, the PBR would be there.

15:27 12 Q. As you evaluated the long-string-versus-liner issue, you
15:27 13 only looked at the tubulars that were going to be used and did
15:28 14 not actually analyze any type of seal assembly or PBR system,
15:28 15 correct?

15:28 16 A. Yes. Did not analyze any type of equipment that's in the
15:28 17 wellbore, that's correct.

15:28 18 Q. You talked about factors of safety, but the factors of
15:28 19 safety that you talked about, these have to do with production
15:28 20 loads, which is after the well is put into production, correct?

15:28 21 A. That's correct.

15:28 22 Q. These factors of safety that you talked about do not have
15:28 23 anything to do with the safety surrounding the cement job or
15:28 24 the temporary abandonment, correct?

15:28 25 A. Yes. The factor of the safety on the tubular mechanics

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15:28 1 part.

15:28 2 Q. But to answer my question, it doesn't have anything to do
15:28 3 with the safety surrounding the cement job or the temporary
15:28 4 abandonment, correct?

15:28 5 A. Yeah, no impact on the cement job.

15:28 6 MR. DEGRAVELLES: Thank you, sir.

15:28 7 I pass the witness.

15:28 8 THE COURT: United States.

15:28 9 MR. UNDERHILL: If I'm not off in 5 or 10,
15:28 10 Your Honor, you're welcome to kick me off. Not literally, I
15:28 11 hope.

12 CROSS-EXAMINATION

15:29 13 BY MR. UNDERHILL:

15:29 14 Q. Good afternoon, Dr. Lewis, Mike Underhill from the
15:29 15 United States, and I have no cross-examination for you.

15:29 16 A. Good afternoon.

15:29 17 Q. Thank you very much.

15:29 18 I'm just going to show you a few documents. I think
15:29 19 one you considered and I think three you haven't, and that's
15:29 20 going to be the extent of my questions.

15:29 21 I believe you cited in your report the application
15:29 22 for revised bypass which was submitted to MMS, which is
15:29 23 TREX-03527. Is that the document cited in your report, sir?

15:29 24 A. Yes, I believe so.

15:29 25 MR. UNDERHILL: Could you go, Dawn, please, to the

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15:29 1 second- or third-to-last page. I'm not sure what number it is
15:29 2 up there. I will show you when you get to it.

15:29 3 Go to the last and then back up by two. One
15:29 4 more back. There we go.

15:29 5 **BY MR. UNDERHILL:**

15:29 6 **Q.** Just for context, if we need to refer to this later on in
15:29 7 the trial, sir. Can you see it?

15:30 8 **A.** Yes.

15:30 9 **MR. UNDERHILL:** Actually, go to the bottom, please.

15:30 10 **BY MR. UNDERHILL:**

15:30 11 **Q.** All I want to find out is the 9-7/8 by 7 casing, or
15:30 12 whatever the dimensions were you were talking about here, is
15:30 13 that this section here, sir?

15:30 14 **MR. UNDERHILL:** Dawn, could you pull that down,
15:30 15 please.

15:30 16 **THE WITNESS:** No. I think that's the 9 7/8-inch
15:30 17 liner that was in the wellbore.

15:30 18 **MR. UNDERHILL:** Got it. Move it up.

15:30 19 **BY MR. UNDERHILL:**

15:30 20 **Q.** Why don't you do this. Can you use the pointer and just
15:30 21 show us which section you are talking about.

15:30 22 **MR. UNDERHILL:** Can I approach the witness with a
15:30 23 pointer? It might be easier, Your Honor.

15:30 24 **THE COURT:** I think he has a pointer.

25

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15:30 1 BY MR. UNDERHILL:

15:30 2 Q. Why don't you point up there. That way --

15:30 3 A. Like right here?

15:30 4 Q. There you go.

15:30 5 A. It says "Interval 7."

15:30 6 Q. So No. 7. And how about No. 8? Is that part of the tube,
15:30 7 or is that open hole?

15:30 8 A. Yeah, but this -- right, No. 7 is the 9 7/8 liner,
15:31 9 drilling liner, that was in the wellbore. That's No. 7.

15:31 10 MR. UNDERHILL: Got it. Can we pull that up.

15:31 11 Actually, the 7/8, pull that out. Thank you.

15:31 12 BY MR. UNDERHILL:

15:31 13 Q. That's the section you are talking about, Dr. Lewis?

15:31 14 A. Yes, that's correct.

15:31 15 Q. Thank you. I'm not going to having to ask you any
15:31 16 questions on that.

15:31 17 MR. UNDERHILL: You can take the exhibit down,
15:31 18 please.

15:31 19 Another one, Dawn. If you could put up, please,
15:31 20 TREX-01134.

15:31 21 BY MR. UNDERHILL:

15:31 22 Q. My only question to you, sir, is -- I think -- I didn't
15:31 23 see this in your reliance or consideration materials. That's
15:31 24 all I want to know, is whether you considered this document,
15:31 25 which is a management of change document, in rendering your

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15:31 1 opinions in this case.

15:31 2 A. Can you make it a little bit wider? Thank you.

15:31 3 Q. This is the one where -- this is the management of change
15:32 4 concerning that last section that they cased?

15:32 5 A. I have actually seen this document. It doesn't really
15:32 6 impact anything that I did in terms of looking at the
15:32 7 structural integrity.

15:32 8 Q. Got it.

15:32 9 **MR. UNDERHILL:** Ms. Miller, could you pull the
15:32 10 section, "Risk/Mitigation," and do a fly-out with that, just
15:32 11 that paragraph. I just want to make sure that we are good on
15:32 12 this.

15:32 13 Can you blow it up, possibly, and stretch it
15:32 14 out. It's tough to see.

15:32 15 **BY MR. UNDERHILL:**

15:32 16 Q. You might look up here, sir. I don't know how your
15:32 17 eyesight is, if it's like mine.

15:32 18 My only question, did you rely upon this fold-out
15:32 19 paragraph on the exhibit in rendering your opinions in this
15:32 20 case?

15:32 21 A. No. ECD, or equivalent circulation density, doesn't
15:32 22 impact the design.

15:32 23 Q. You didn't consider frac gradient or anything like that?

15:32 24 A. No.

15:32 25 **MR. UNDERHILL:** We can take that down. Thank you.

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1 Could you pull up, Dawn, TREN-01256, please.

2 I'm sorry. Negative. 0546. TREN-00546.

3 **BY MR. UNDERHILL:**

4 **Q.** It's going to be the same question. It's an e-mail from
5 Ronnie Sepulvado, well site leader, April 16, 2010, to
6 Bob Kaluza, the guy who relieved him on the rig, and
7 Lee Lambert.

8 My only question to you is: Did you consider this
9 particular e-mail, TREN-00546, in rendering your opinions in
10 this case?

11 **A.** No. I've never seen this document.

12 **MR. UNDERHILL:** The final one, Dawn, is TREN-01220.
13 It's another e-mail. Why don't we just pull out the top there.
14 This is from Michael Beirne.

15 Actually, could you go down to where it's the
16 Bodek one there, Dawn. There you go.

17 **BY MR. UNDERHILL:**

18 **Q.** Same question, sir. Did you consider this document, which
19 is TREN-01220 -- the Bodek e-mail dated April 13, 2010, to
20 Michael Beirne, did you consider this document in rendering
21 your opinions in this case?

22 **A.** No. It wouldn't apply.

23 **Q.** Final question. Do you understand that when BP submitted
24 its revised application for bypass, that first document we
25 showed you, that BP was under an obligation to tell the truth

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15:34 1 when they submitted that document and make sure that the
15:34 2 information contained in the document was truthful and
15:34 3 accurate?

15:34 4 A. I really don't know what the requirements are. I assume
15:34 5 you always want to tell the truth, yes.

15:34 6 MR. UNDERHILL: That's all I have. Thank you very
15:34 7 much. I pass the witness.

15:34 8 THE COURT: Louisiana?

15:34 9 MR. KANNER: No questions, Your Honor.

15:34 10 THE COURT: Alabama?

15:34 11 MR. SINCLAIR: No questions, Your Honor.

15:34 12 THE COURT: Transocean?

15:35 13 MR. BRIAN: No questions, Your Honor.

15:35 14 THE COURT: We are on a roll here.

15:35 15 Halliburton?

15:35 16 MR. BOWMAN: The PSC asked all my questions, so no
15:35 17 questions.

15:35 18 THE COURT: Any redirect?

15:35 19 MR. KEEGAN: As much as I would like to, Your Honor,
15:35 20 no.

15:35 21 THE COURT: I think we have just established some
15:35 22 kind of record.

15:35 23 Thank you, sir.

15:35 24 MR. LEGER: I think I taught them a lesson,
15:35 25 Your Honor.

15:35 1 THE COURT: Or I did.

15:35 2 Where are we?

15:35 3 MR. BROCK: We are slow learners, but once it gets
15:35 4 through, we are good.

15:35 5 Our next witness, Your Honor, is Mr. Lirette.
15:35 6 We are ready to proceed with him.

15:36 7 THE COURT: He is going to be testifying as an
15:36 8 expert, or is he --

15:36 9 MR. BROCK: He's testifying as a fact witness.

15:36 10 THE COURT: I'm going to step off the bench about
15:36 11 five minutes while we get set up. Let me know when he is here.

15:36 12 (Recess.)

15:42 13 THE COURT: Please be seated, everyone.

15:42 14 Mr. Regan.

15:42 15 MR. REGAN: Good afternoon, Your Honor. BP calls as
15:42 16 its next witness Mr. Brent Lirette.

15:42 17 BRENT LIRETTE,
15:42 18 having been duly sworn, testified as follows:

15:42 19 THE DEPUTY CLERK: State your full name and correct
15:42 20 spelling for the record, please.

15:43 21 THE WITNESS: My name is Brent Lirette, B-R-E-N-T
15:43 22 L-I-R-E-T-T-E.

15:43 23 DIRECT EXAMINATION

15:43 24 BY MR. REGAN:

15:43 25 Q. Good afternoon, Mr. Lirette. Can you tell the Court where

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15:43 1 you live.

15:43 2 A. I live in Cypress, Texas.

15:43 3 Q. Where do you work?

15:43 4 A. I work for Weatherford in Houston.

15:43 5 Q. What is your job at Weatherford?

15:43 6 A. Product line engineering manager for cement products.

15:43 7 Q. Just to get right to it, are float collars one of the
15:43 8 areas underneath your organization at Weatherford?

15:43 9 A. Yes, it is.

15:43 10 Q. How long -- I just want to give your background quite
15:43 11 briefly. But how long have you been involved in the cementing
15:43 12 products area, that meaning like cementing tools and those
15:43 13 types of things?

15:43 14 A. Over 28 years.

15:43 15 Q. Mostly with Weatherford?

15:43 16 A. Yes. Originally with Gemco, which was acquired by
15:43 17 Weatherford in 1992.

15:43 18 Q. You have been involved in the actual design of a number of
15:44 19 these products; is that right?

15:44 20 A. Yep.

15:44 21 Q. In a minute we are going to talk just about the float
15:44 22 collar, some of the design issues. But could you tell the
15:44 23 Court the involvement that you had personally with respect to
15:44 24 the development and design of a Weatherford product known as
15:44 25 the M45AP flow-activated mid-bore autofill float collar.

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15:44 1 A. I was the manager of an engineering group that designed
15:44 2 the float collar.

15:44 3 **MR. REGAN:** If we can put up TREN-2582.

15:44 4 **BY MR. REGAN:**

15:44 5 Q. Actually, before I get there, are you a member of any API
15:44 6 committees, Mr. Lirette?

15:44 7 A. Yes. I'm a member of Committee 10.

15:44 8 Q. Just for the Court, what is Committee 10 of the API?

15:44 9 A. Cement, well cements.

15:44 10 Q. Are you a member of the Society of Petroleum Engineers as
15:45 11 well?

15:45 12 A. Yes, I am.

15:45 13 Q. So I've put on the screen in front of you TREN-2582. Do
15:45 14 you recognize this document, Mr. Lirette?

15:45 15 A. Yes, I do.

15:45 16 Q. It's about eight pages long, but what is it?

15:45 17 A. It's a technical unit for the M45AP float collar.

15:45 18 Q. The Court has seen this document before and heard some
15:45 19 testimony about float collars, but I would like to -- some of
15:45 20 the details that may be relevant to the Court's inquiry I would
15:45 21 like to go into.

15:45 22 **MR. REGAN:** If we could go to page 2, so 2582.2. I
15:45 23 have made larger there on the screen.

15:45 24 **BY MR. REGAN:**

15:45 25 Q. Is that a picture of this M45 float collar?

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15:45 1 A. Yes, it is.

15:45 2 Q. Are you familiar with all of the pieces and parts of that
15:45 3 float collar, Mr. Lirette?

15:45 4 A. Yes, I am.

15:45 5 Q. Are you familiar with how that float collar is intended to
15:45 6 be used?

15:45 7 A. Yes.

15:45 8 Q. I would just like to get some detail then, if I could.

15:45 9 MR. REGAN: I'm going to go, Donnie, if we could, to
15:45 10 the ELMO. I'm going to have the same page, which we will mark
15:46 11 as 2582.2.A.

15:46 12 BY MR. REGAN:

15:46 13 Q. Now, first, Mr. Lirette, just so -- I'm going to just work
15:46 14 from the top down.

15:46 15 The top of the float collar has what's called a
15:46 16 landing plate. Do you see that?

15:46 17 A. Yes.

15:46 18 Q. What's the purpose of that area on the float collar?

15:46 19 A. This is where the cementing plugs will land.

15:46 20 Q. So those are not part of the float collar itself, are
15:46 21 they?

15:46 22 A. The plugs are not part of the float collar.

15:46 23 Q. The next thing we see here is what's called a composite
15:46 24 ball retainer right there. What is that?

15:46 25 A. The ball retainer holds the 2-inch ball in place as the

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15:46 1 casing is run downhole.

15:46 2 Q. Then underneath it here we have this orange tube. What do
15:46 3 you refer to that as?

15:47 4 A. The autofill tube.

15:47 5 Q. If I could zoom in, we see a series of little white dots
15:47 6 there. Can you tell the Court what those are?

15:47 7 A. Those are four brass shear screws.

15:47 8 Q. Now, does Weatherford manufacture float collars that have
15:47 9 different numbers of those screws?

15:47 10 A. Yes, we do.

15:47 11 Q. Why would you have float collars that have four or some
15:47 12 that have three or some that have more?

15:47 13 A. To change the conversion pressure.

15:47 14 Q. What's the size of those shear screws?

15:47 15 A. .19 inches. And they are threaded.

15:47 16 Q. I want to show a picture of those screws, and then we will
15:47 17 come back and talk about the purpose of them.

15:47 18 **MR. REGAN:** Donnie, if we can go to TREN-87132.

15:48 19 **BY MR. REGAN:**

15:48 20 Q. Can you describe for the Court what I have on the screen,
15:48 21 Mr. Lirette.

15:48 22 A. Those are four .19-inch brass shear screws. They're the
15:48 23 same ones that are used on the M45AP.

15:48 24 Q. Very good.

15:48 25 **THE COURT:** The .19 being the diameter?

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15:48

1 THE WITNESS: Yes.

15:48

2 THE COURT: What's the length? About a half-inch or
3 so?

15:48

4 THE WITNESS: Approximately.

15:48

5 BY MR. REGAN:

15:48

6 Q. Now, just for a question we will ask you in a minute, the
7 fact that they are threaded, what does that mean to you as the
8 person that helped design this product?

15:48

15:48

9 A. The shear area is smaller than -- shear diameter is
10 smaller than .19 inches.

15:48

15:48

11 Q. I think we can do it with this picture that's up on the
12 board.

15:48

15:48

13 What's the purpose of these shear pins or screws that
14 are at the top of that tube in the float collar?

15:48

15:48

15 A. The purpose is to hold the tube in place until enough --
16 enough force is created to shear the screws and release the
17 autofill tube.

15:48

15:48

18 Q. So these screws are actually designed to fail, which then
19 would release the tube through the float collar itself?

15:48

15:49

20 A. Yes.

15:49

15:49

21 Q. So how does the threaded aspect of them pertain, if at
22 all, to that process or that design?

15:49

15:49

23 A. Well, the threads, of course, hold the screws in place.

15:49

15:49

24 And because they are threaded, you know, the shear area is less
25 than -- shear diameter is less than .19 inches.

15:49

15:49

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15:49 1 MR. REGAN: Let's go back to the ELMO, to

15:49 2 TREX-2582.2.A.

15:49 3 BY MR. REGAN:

15:49 4 Q. The Court has heard about these valves. Could you just
15:49 5 describe in your own words -- what would you call those?

15:49 6 A. Those are spring-loaded flapper valves.

15:49 7 Q. It says here they are made out of aluminum; is that
15:49 8 correct?

15:49 9 A. Yes.

15:49 10 Q. Why in your design do you have those made out of aluminum?

15:49 11 A. So that they are easily drilled with a PDC bit or other
15:49 12 bits such as roller cone bits.

15:49 13 Q. Could you just elaborate a little bit more. Why would you
15:50 14 have a float collar be made out of material that could be
15:50 15 easily drilled through?

15:50 16 A. Because to drill further, to drill deeper, they have to
15:50 17 drill through the float equipment, remove the inner parts of it
15:50 18 to be able to continue drilling downhole and also to produce
15:50 19 the well.

15:50 20 Q. That would be something that would happen later on in the
15:50 21 life of a well?

15:50 22 A. Yes.

15:50 23 Q. Being drillable just means you can actually, with a drill
15:50 24 bit, get through this material?

15:50 25 A. Yes.

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15:50 1 Q. If we go on down to the bottom, we have at the bottom of
15:50 2 this tube what's called a high-density phenolic ball. Do you
15:50 3 see that right there?

15:50 4 A. Yes.

15:50 5 Q. What's the purpose of that ball, Mr. Lirette?

15:50 6 A. That ball, as you are running it in, it actually is moved
15:50 7 up to the retainer so that flow can be diverted around it and
15:50 8 so that as you are running casing, the fluid from the well can
15:51 9 enter the casing and reduce surge pressures on the formation.

15:51 10 **MR. REGAN:** Donnie, let's go to 2582.8.

15:51 11 **BY MR. REGAN:**

15:51 12 Q. Do you see here, Mr. Lirette, in the same document, on the
15:51 13 far left side is a description -- it's a little bit hard to
15:51 14 see, but here, "running in hole" with the ball up here at the
15:51 15 top?

15:51 16 A. Yes.

15:51 17 Q. Is that what you were just describing?

15:51 18 A. Yes.

15:51 19 Q. What's the purpose of this product, as you know, when you
15:51 20 are running casing? Why would you use an autofill tube, or
15:51 21 what's its intended purpose?

15:51 22 A. By allowing flow into the casing, surge pressures on the
15:51 23 formation are reduced and you have less of a chance of breaking
15:51 24 down the formation and losing fluid and possibly well control.

15:51 25 Q. Then the Court has seen this before. But quickly, does

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15:51 1 this four sequences describe the way that then that tube is
15:52 2 ejected from the float collar device once you are ready to
15:52 3 cement?

15:52 4 A. Yes.

15:52 5 Q. Once you eject the tube, what's the purpose of the float
15:52 6 collar?

15:52 7 A. After the tube is ejected, the flappers seal against the
15:52 8 seat and prevent the backflow of cement, wet cement, back into
15:52 9 the casing.

15:52 10 Q. Does Weatherford market this device as a well control
15:52 11 barrier?

15:52 12 A. No.

15:52 13 Q. Does Weatherford market this device as a seal to
15:52 14 hydrocarbon flow?

15:52 15 A. No.

15:52 16 **MR. REGAN:** Let's go back, then, to the ELMO,
15:52 17 2582.2.A.

15:52 18 **BY MR. REGAN:**

15:52 19 Q. Now, how does the ball stay inside the tube in the float
15:52 20 collar that we have been talking about?

15:52 21 A. There is a ball seat with a diameter that's smaller than
15:52 22 the ball that holds the ball in place.

15:52 23 Q. So where it says "ball seat" right here. So basically a
15:53 24 smaller ring that holds the ball from coming out, correct?

15:53 25 A. Yes.

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15:53 1 Q. How is that ring held inside the tube?

15:53 2 A. We have epoxy that holds it in place, plus we have four
15:53 3 .25-inch diameter brass pins that hold it in place.

15:53 4 Q. It's abundantly obvious, but just to belabor it, the pins
15:53 5 that are at the bottom that are holding in the ball seat are
15:53 6 different than the shear pins that are at the top, correct?

15:53 7 A. Yes.

15:53 8 Q. They are thicker, correct?

15:53 9 A. Yes.

15:53 10 Q. They are not threaded, correct?

15:53 11 A. That's right.

15:53 12 Q. Are they stronger?

15:53 13 A. Yes, more than twice as strong as the .19-inch threaded
15:53 14 screws.

15:53 15 Q. Why did you design the product to have these very strong
15:53 16 pins at the bottom and epoxy on this ball seat but have these
15:54 17 threaded shear screws that are smaller at the top of the tube?

15:54 18 A. So that the shear pins would shear before the seat would.

15:54 19 Q. To be clear, the design of this product is to have these
15:54 20 pins fail when there's sufficient flow to eject the tube,
15:54 21 right?

15:54 22 A. Yes.

15:54 23 Q. There's been some questions about ejecting, whether this
15:54 24 ball can be ejected from this tube and leave the tube in place.

15:54 25 As one of the people that designed this product, do

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15:54 1 you see that as a possible outcome?

15:54 2 A. No.

15:54 3 **MR. HILL:** Your Honor, I'm going to object. This is
15:54 4 a fact witness being asked expert opinion.

15:54 5 **THE COURT:** It does sound more like expert testimony
15:54 6 to me than fact testimony.

15:54 7 **MR. REGAN:** Let me see if I can ask that question --
15:54 8 rephrase it, Your Honor.

15:54 9 **MR. HILL:** I may stay on my feet.

15:54 10 **BY MR. REGAN:**

15:54 11 **Q.** Why do you have thicker pins and epoxy at the bottom of
15:55 12 the tube of your float collar compared to what you have at the
15:55 13 top?

15:55 14 **A.** So that the shear screws will shear at a much lower
15:55 15 pressure than it would take to break the seat from the autofill
15:55 16 tube.

15:55 17 **Q.** In your work at Weatherford, have you ever heard of a
15:55 18 float collar having the ball blown through the bottom of it and
15:55 19 leaving the tube with the shear pins in the top?

15:55 20 **A.** No.

15:55 21 **Q.** Mr. Lirette, the first page --

15:55 22 **MR. REGAN:** Donnie, if you can you go back to 2582.1.
15:55 23 First paragraph at the top.

15:55 24 **BY MR. REGAN:**

15:55 25 **Q.** We have already talked about surge reducing, but there's

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15:56 1 also -- it says in the first sentence, it's "debris tolerant."

15:56 2 What does that mean, Mr. Lirette?

15:56 3 A. When the float equipment was designed, we put as large of
15:56 4 a valve as we could to allow debris to come through the float
15:56 5 collar without plugging.

15:56 6 Q. Let me now show you TREX-7598.19.

15:56 7 Now, Mr. Lirette, I don't know if you have seen this
15:56 8 picture before, but I will represent to you it's a picture from
15:56 9 some testing that Stress Engineering did for Transocean. As
15:56 10 indicated in the picture, they glued the top of the float
15:56 11 collar to this device before the testing took place.

15:56 12 My question to you is quite simple. Is what you see
15:56 13 there, as represented on that picture, is that the design of
15:56 14 the float collar? Is that the way it's intended to be used?

15:57 15 A. No.

15:57 16 Q. Now, you did personally --

15:57 17 **MR. REGAN:** Thank you, Donnie.

15:57 18 **BY MR. REGAN:**

15:57 19 Q. You did personally observe some testing that was done by
15:57 20 Stress Engineering of Weatherford float collars, correct?

15:57 21 A. Yes.

15:57 22 Q. You observed that testing that was done for the BP
15:57 23 investigation team, correct?

15:57 24 A. Yes.

15:57 25 Q. You were not a member of the BP investigation team, were

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15:57 1 you?

15:57 2 A. I was not.

15:57 3 Q. You were just there as an observer, correct?

15:57 4 A. Yes.

15:57 5 Q. Did you personally observe, Mr. Lirette, tests that were
15:57 6 run by Stress Engineering where they simulated the flow that
15:57 7 would be created from a pressure release of 3142 psi to zero?

15:57 8 A. Yes.

15:57 9 Q. Can you tell the Court what you personally observed
15:57 10 happened to the float collar when Stress Engineering ran that
15:57 11 test?

15:57 12 A. The float equipment converted, and there was no damage to
15:57 13 the float equipment. And, in fact, we did back-pressure tests,
15:57 14 and the float equipment held as designed.

15:57 15 Q. You were there when they ran that test?

15:58 16 A. Yes.

15:58 17 **MR. REGAN:** Those are all the questions I have,
15:58 18 Your Honor.

15:58 19 **THE COURT:** All right. Plaintiffs.

15:58 20 **MR. BREIT:** Very few, Your Honor.

15:58 21 **CROSS-EXAMINATION**

15:58 22 **BY MR. BREIT:**

15:58 23 Q. My name is Jeffrey Breit and I represent the PSC and I
15:58 24 have you on cross-examination. Just a few questions, if I
15:58 25 could, please, Mr. Lirette.

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15:58 1 The float collar that we have been talking about, as
15:58 2 designed by you -- and before I start, let me back up for a
15:59 3 half a second.

15:59 4 I don't mean to open any doors about expert testimony
15:59 5 that the Court has excluded based on earlier rulings. I'm
15:59 6 going to try to narrow my questions to factual questions
15:59 7 related to what's been asked on direct and try to limit myself.
15:59 8 And if we get into an expert opinion, I might stop you just to
15:59 9 make sure that we don't go too far, if that's all right.

15:59 10 The float collar that was designed and being used, it
15:59 11 has a certain pounds-per-square-inch limit, does it not, as
15:59 12 designed, where it could be pushed beyond its limits and
15:59 13 possibly fail?

15:59 14 A. Yes.

15:59 15 Q. It's my understanding that that particular float collar
15:59 16 that was being used on the Macondo well had a limit of
15:59 17 somewhere around 1300 pounds per square inch where there was a
15:59 18 risk that the float collar could be damaged. Is that right?

15:59 19 A. No.

16:00 20 Q. What was the number that you understood prior to April 20,
16:00 21 2010, where the float collar could possibly be damaged?

16:00 22 A. If you mean --

16:00 23 Q. For purposes of conversion. It wouldn't convert. Was
16:00 24 there a pounds per square inch that there was a risk it might
16:00 25 damage the flappers?

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16:00 1 A. The -- first of all, I'm not sure how you could get the
16:00 2 pressure above 1300 psi, for instance, to convert the autofill
16:00 3 tubes because they shear out at 500 to 700 psi.

16:00 4 Q. Did you understand that, on this particular well, in
16:00 5 attempts to convert, BP ran the pressure up to 3142 pounds per
16:00 6 square inch?

16:00 7 A. Yes.

16:00 8 **MR. REGAN:** Your Honor, just from a standpoint of the
16:00 9 witness to be mindful of the scope that he is in. We have not
16:01 10 put him on as to anything about the accident at the well, just
16:01 11 about how the device works.

16:01 12 **MR. BREIT:** And if the device was pushed beyond its
16:01 13 limits as designed by this man, it is a narrow area and I'm
16:01 14 trying not to expand it beyond that.

16:01 15 **THE COURT:** It sounds like you are about to. Right?

16:01 16 **MR. BREIT:** I'm trying to keep it within one step
16:01 17 below, Your Honor.

16:01 18 **THE COURT:** Re-ask the question.

16:01 19 **BY MR. BREIT:**

16:01 20 Q. Did you understand that on the Macondo well, that BP took
16:01 21 the pressure up to 3142 pounds per square inch?

16:01 22 A. Yes.

16:01 23 Q. Did you understand that prior to taking the pressure up to
16:01 24 3142 pounds per square inch that a BP representative,
16:01 25 Mr. Morel, spoke to someone at Weatherford about whether the

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1 risks are of damaging the float collar?

2 **MR. REGAN:** Your Honor, I object, because the witness
3 does have an understanding from expert work he did after the
4 fact. He had no involvement in Macondo as a fact witness. So
5 he knows these things as an expert, but that's the only basis
6 in which he knows them from after the fact. He was not a fact
7 witness to any of the events that Mr. Breit is referring to.

8 **MR. BREIT:** And my point, Your Honor, is -- and I
9 don't want to belabor it either -- Mr. Regan put on this
10 witness as the designer of this particular float collar as it
11 was designed in his expert capacity as a designer. And it's
12 part of the --

13 **THE COURT:** But he hasn't talked about -- you're
14 trying to go into what actually occurred or might have occurred
15 on the rig that night. And that seems to be beyond --

16 I'm going to sustain the objection.

17 **BY MR. BREIT:**

18 **Q.** All right. Let me ask this question: Is the float collar
19 as designed by you supposed to convert prior to 3142 pounds per
20 square inch of pressure? It was designed to convert those
21 flappers and the ball, all of that, to be moving through the
22 pipe at a pressure somewhere closer to 1300 psi, wasn't it?

23 **A.** If that pressure is transmitted to the autofill tube and
24 the ball seat.

25 **Q.** And if it is, it's supposed to work somewhere below

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16:03 1 1300 psi, correct?

16:03 2 A. Yes, it will.

16:03 3 Q. It's not intended to be designed to work at 3142 psi, is
16:03 4 it?

16:03 5 A. It's designed to convert at 500 to 700 psi.

16:03 6 Q. And there's a risk above 500 to 700 psi of damaging that
16:03 7 collar, correct?

16:03 8 A. If something were to land or accumulate above the float
16:03 9 collar, it should withstand over 6000 psi.

16:03 10 Q. But if you are not sure whether or not the flappers have
16:03 11 converted, there's a way to test that with a test packer, isn't
16:03 12 there?

16:03 13 **MR. REGAN:** I object to that. Perhaps you are
16:04 14 getting into the design of test packers and all the rest.

16:04 15 **MR. BREIT:** I'm not. I'm just trying to decide if
16:04 16 that is something that can be used with your designed float
16:04 17 collar to determine whether or not it has converted.

16:04 18 **THE COURT:** I'll let him answer that if you can.

16:04 19 **THE WITNESS:** It wouldn't be practical in the
16:04 20 situation to do that.

16:04 21 **BY MR. BREIT:**

16:04 22 Q. It wouldn't be practical because of why, time?

16:04 23 A. Yes, timewise.

16:04 24 Q. It would take too much time to do?

16:04 25 A. Yes.

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16:04 1 Q. And that's about what, a day and a half to test whether or
16:04 2 not it, in fact, converted?

16:04 3 MR. REGAN: Your Honor, I just renew my objection,
16:04 4 because now we are asking him for his opinion on how long does
16:04 5 it take to run a packer into casing above a float collar to
16:04 6 test it.

16:04 7 MR. BREIT: He was able to answer it, Your Honor,
16:04 8 with regard to time. I'm trying to find out if the time is
16:04 9 10 minutes or a day and a half, and it's designed to work with
16:04 10 his system.

16:04 11 THE COURT: Can you answer that, sir?

16:04 12 BY MR. BREIT:

16:04 13 Q. It takes about a day and a half, doesn't it?

16:04 14 A. I would say a day and a half would sound reasonable.

16:05 15 Q. Now, also, the flappers or the autofill tube are supposed
16:05 16 to release, and Weatherford and you recommended it be used with
16:05 17 a circulation of 5 to 7 barrels per minute, correct?

16:05 18 A. Yes.

16:05 19 Q. And you understand that it was never circulated anywhere
16:05 20 near 5 to 7 barrels per minute, was it?

16:05 21 MR. REGAN: Objection.

16:05 22 THE COURT: Now you are going there again.

16:05 23 MR. BREIT: Just as it's designed with this
16:05 24 particular piece of equipment.

16:05 25 THE COURT: Sustain the objection.

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16:05 1 **BY MR. BREIT:**

16:05 2 **Q.** I'll ask this question: It is designed to have
16:05 3 circulation of 5 to 7 pounds?

16:05 4 **THE COURT:** He just answered that.

16:05 5 **MR. BREIT:** Okay. Lastly, Your Honor --

16:05 6 **BY MR. BREIT:**

16:05 7 **Q.** Are you familiar with whether there were centralizers that
16:05 8 were also sent out by Weatherford with regard to this
16:05 9 particular equipment with your float collar?

16:05 10 **A.** Yes.

16:05 11 **Q.** Do you know how many centralizers were sent out?

16:05 12 **THE COURT:** Don't we know that already? We know
16:05 13 there were 15.

16:06 14 **MR. BREIT:** We know there were 15 sent out on
16:06 15 April 16.

16:06 16 **THE COURT:** We know the decision was made not to use
16:06 17 it. We know all that.

16:06 18 **MR. BREIT:** Yes, we do, Your Honor.

16:06 19 **BY MR. BREIT:**

16:06 20 **Q.** Had you redesigned those particular centralizers at the
16:06 21 request of BP prior to April 20, 2010?

16:06 22 **A.** We had redesigned the stop collars.

16:06 23 **Q.** You had done that yourself, you had redesigned the stop
16:06 24 collars. And those were the stop collars that were on the
16:06 25 centralizers that sent out to the Macondo; is that right?

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16:06 1 A. They were redesigned by people that worked for me.

16:06 2 Q. After BP's request?

16:06 3 A. At BP's request.

16:06 4 Q. And those were the ones that were sent out on April 16, as
16:06 5 far as you know?

16:06 6 A. Yes.

16:06 7 MR. BREIT: That's all I have, Your Honor.

16:06 8 THE COURT: Alabama?

16:06 9 MR. SINCLAIR: No questions, Your Honor.

16:06 10 THE COURT: Louisiana?

16:06 11 MR. KRAUS: No questions, Your Honor.

16:06 12 THE COURT: Transocean?

16:06 13 MR. MILLER: I think you skipped the U.S.A.,
16:06 14 Your Honor.

16:06 15 THE COURT: Oh, did I?

16:06 16 MS. SHUTLER: It's quite all right. No questions.

16:06 17 THE COURT: That was not intentional.

16:06 18 MR. UNDERHILL: Your Honor, I can understand how you
16:06 19 could miss me.

16:07 20 THE COURT: No questions from the United States?

16:07 21 MS. SHUTLER: No, Your Honor.

16:07 22 THE COURT: Okay. Thank you. Sorry about that.

16:07 23 Transocean?

16:07 24 MR. MILLER: We don't have any questions for
16:07 25 Mr. Lirette.

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16:07 1 THE COURT: Okay. Halliburton?

16:07 2 CROSS-EXAMINATION

16:07 3 BY MR. HILL:

16:07 4 Q. Good afternoon, Mr. Lirette. My name is Gavin Hill. I
16:07 5 represent Halliburton, and I'm going to have you on
16:07 6 cross-examination.

16:08 7 MR. HILL: Your Honor, may I proceed?

16:08 8 THE COURT: Yes.

16:08 9 MR. HILL: Can we bring up TREN-2582, please. What I
16:08 10 would like to do is blow this up right here.

16:08 11 BY MR. HILL:

16:08 12 Q. Now, Mr. Lirette, this is the TREN document or the
16:08 13 specification sheet for the M45AP float collar that you were
16:08 14 just discussing with BP's counsel, correct?

16:08 15 A. Yes.

16:08 16 Q. I would like to just talk and have you explain to the
16:08 17 Court what some of these things mean. On this specification
16:08 18 sheet there is a performance section that says that there is a
16:08 19 back-pressure rating. And given the size of this, of the float
16:08 20 collar that was used here, that back-pressure rating on this
16:08 21 particular unit was 5000 psi, correct?

16:08 22 A. Yes.

16:08 23 Q. And down here where it says "conversion pressure," this
16:08 24 standard conversion pressure you have been talking about of
16:09 25 500 to 700 psi, that's what this is identifying on the spec

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16:09 1 sheet, correct?

16:09 2 A. Yes.

16:09 3 Q. Can you tell the Court what the applicable flow rate is in
16:09 4 order to achieve that pressure differential?

16:09 5 A. It's 5 to 8 barrels per minute.

16:09 6 Q. Now, right below it there is an optional conversion
16:09 7 pressure, correct?

16:09 8 A. Yes.

16:09 9 Q. And that is at 300 to 400 psi conversion pressure,
16:09 10 correct?

16:09 11 A. Yes.

16:09 12 Q. Can you give the Court an idea of the circulation rates in
16:09 13 barrels per minute that would be used to convert this float
16:09 14 collar at 300 to 400 psi?

16:09 15 A. I believe it's -- it would be below 5 barrels per minute.

16:09 16 Q. Now, are you aware of whether this option to have this
16:09 17 optional float collar with this low conversion rate was
16:09 18 available in April of 2010 from Weatherford?

16:09 19 A. I believe it was.

16:09 20 Q. Are you aware of whether BP ever asked Weatherford to
16:09 21 order one of these float collars for use at the Macondo well?

16:10 22 MR. REGAN: I object, Your Honor. I think it's
16:10 23 outside the scope.

16:10 24 MR. HILL: It's a fact question.

16:10 25 MR. REGAN: Lack of foundation.

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16:10 1 **THE COURT:** That's a fact question.

16:10 2 **THE WITNESS:** I'm not aware. I don't know.

16:10 3 **BY MR. HILL:**

16:10 4 **Q.** Weatherford could have provided one of these for use at
16:10 5 Macondo, correct, in the optional conversion package?

16:10 6 **A.** I think there was a problem in getting the equipment
16:10 7 manufactured, and it was actually purchased from another
16:10 8 source.

16:10 9 **Q.** You sound like you are aware of conversations between BP
16:10 10 and Weatherford and the ordering of the float collar. Is that
16:10 11 the case?

16:10 12 **A.** I've only read some testimony.

16:10 13 **Q.** We won't go there.

16:10 14 **MR. HILL:** Let's go to the same document and the page
16:10 15 ending Bates 0472, please.

16:10 16 And, Your Honor, for the record, this is
16:10 17 TREX-2582.004.

16:11 18 And if we can pull this out at the top.

16:11 19 **BY MR. HILL:**

16:11 20 **Q.** Now, this document, these are specifications that are
16:11 21 provided to the market so that customers such as BP can
16:11 22 understand the engineering specifications of the engineer and
16:11 23 pieces of equipment that they order, correct?

16:11 24 **A.** Yes.

16:11 25 **Q.** All right. And right here in this specification, it

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16:11 1 actually identified that the float collar can be ordered with
16:11 2 this optional conversion pressure of 300 to 400 psi, correct?

16:11 3 A. Yes.

16:11 4 **MR. HILL:** Go to the next page on this same document,
16:11 5 please. Let's bring up this first paragraph under "Make-up On
16:11 6 Casing String."

16:11 7 **BY MR. HILL:**

16:11 8 **Q.** Mr. Lirette, this document also says that the
16:11 9 flow-activated mid-bore autofill float collar should be run
16:11 10 with a Weatherford MudMaster shoe filter.

16:11 11 Why is that?

16:11 12 **A.** The filter shoe filters out cuttings that could possibly
16:11 13 plug the float equipment.

16:12 14 **Q.** This Court has heard a lot of discussion about debris. Is
16:12 15 cuttings the same thing as debris or a type of debris you
16:12 16 expect when you run this float equipment in autofill mode?

16:12 17 **A.** Yes.

16:12 18 **Q.** Do you know if Weatherford ever sold a Weatherford
16:12 19 MudMaster filter shoe to BP for use on the Macondo well
16:12 20 production casing?

16:12 21 **A.** I do not know.

16:12 22 **Q.** You would agree with me, sir, that if you do not use a
16:12 23 MudMaster filter shoe or some type of filter shoe, that there
16:12 24 is a higher risk of getting debris in and across your float
16:12 25 collar even when you run it in an autofill mode, correct?

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16:12 1 A. Yes.

16:12 2 MR. REGAN: I object as a hypothetical.

16:12 3 MR. HILL: Your Honor, this goes to the design
16:12 4 specifications.

16:12 5 THE COURT: All right. Okay. It sounds like an
16:12 6 expert question, but go ahead. You got away with it.

16:13 7 BY MR. HILL:

16:13 8 Q. Let's talk just briefly about -- you said you personally
16:13 9 witnessed some of the testing that was done at
16:13 10 Stress Engineering on float collars, correct?

16:13 11 A. Yes.

16:13 12 Q. So here's my question.

16:13 13 MR. HILL: Let's bring up the same document, page
16:13 14 ending Bates 0476.

16:13 15 Your Honor, for the record, this is
16:13 16 TREX-2582.008.

16:13 17 BY MR. HILL:

16:13 18 Q. And these, I think you went through with Mr. Regan, are
16:13 19 the sequences in converting the float collar. Correct?

16:13 20 A. Yes.

16:13 21 Q. When you witnessed the testing -- when you witnessed the
16:13 22 testing at Stress Engineering, that was not done under the same
16:13 23 conditions that existed downhole at Macondo, correct?

16:13 24 A. It only simulated the conditions.

16:13 25 Q. Well, did it -- they didn't use debris or pack off debris

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16:14 1 above the float collar or in this area right here to find out
16:14 2 what, if anything, that would do to the shearing capacity of
16:14 3 the autofill shear pins, right?

16:14 4 A. There was no debris.

16:14 5 Q. Now, getting back in this converted mode right here, when
16:14 6 those flapper valves are closed, it's tested to withstand a
16:14 7 back pressure of 500 psi, at least differential pressure,
16:14 8 correct?

16:14 9 A. 5000 psi.

16:14 10 MR. HILL: And if we could go to TREX -- sorry,
16:14 11 Demonstrative 8015.

16:14 12 BY MR. HILL:

16:14 13 Q. Now, you will have to excuse the crude drawing here of
16:14 14 anything and compare that to the Weatherford technical drawing,
16:14 15 but this right here, you understand, represents the float
16:14 16 collar, correct?

16:14 17 A. Yes.

16:14 18 Q. And this is the shoe track, correct?

16:14 19 A. Yes.

16:14 20 Q. If the float collar was converted during the negative
16:15 21 pressure test, how could it have transmitted 1400 psi to the
16:15 22 drill pipe?

16:15 23 MR. REGAN: Objection.

16:15 24 THE COURT: I'll sustain that objection.

25

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16:15 1 **BY MR. HILL:**

16:15 2 **Q.** You would expect that a converted float collar would
16:15 3 withstand more than 5000 differential pressure from below in a
16:15 4 converted mode, wouldn't you?

16:15 5 **A.** Yes.

16:15 6 **Q.** In fact, it's rated to do just that, right?

16:15 7 **A.** Yes.

16:15 8 **Q.** And if -- well, I'll just leave it there.

16:15 9 **MR. HILL:** Thank you, Your Honor.

16:15 10 **THE COURT:** Back to BP.

16:15 11 **MR. REGAN:** Put up TREX-7597.5.

16:15 12 **REDIRECT EXAMINATION**

16:15 13 **BY MR. REGAN:**

16:15 14 **Q.** Mr. Lirette, just in the bottom of the page, "Flow Surge
16:15 15 Conversion Tests" -- Mr. Lirette, this is just a written report
16:16 16 from Stress Engineering about the tests that you personally
16:16 17 observed.

16:16 18 Can you just read here in the bottom paragraph -- it
16:16 19 says: When they did a flow surge conversion test, quote, the
16:16 20 rupture disc fractured at a pressure of approximately 3036 psi,
16:16 21 releasing a flow surge that reached a peak flow rate of
16:16 22 10.5 barrels per minute.

16:16 23 Did you observe that Mr. Lirette?

16:16 24 **A.** Yes, I did.

16:16 25 **MR. REGAN:** If we can go to the same exhibit, .6,

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16:16 1 TREX-7597.6, top of the page.

16:16 2 **BY MR. REGAN:**

16:16 3 Q. Did they do a second flow surge conversion test that you
16:16 4 observed?

16:16 5 A. Yes.

16:16 6 **MR. HILL:** And it's described there in the first full
16:16 7 paragraph. Donnie, wherever your cursor is, if you could just
16:16 8 highlight this.

16:16 9 **BY MR. HILL:**

16:16 10 Q. Could you read for the Court, Mr. Lirette, what psi did
16:16 11 the rupture disc fracture at when Stress Engineering simulated
16:16 12 the surge in the testing of the float collar?

16:16 13 A. 3210 psi.

16:16 14 Q. And what did that result in a flow rate of -- in terms of
16:17 15 the flow surge?

16:17 16 A. 11.5 barrels per minute.

16:17 17 Q. And did the float collar convert in the first --

16:17 18 **MR. HILL:** This is beyond the scope of anything I
16:17 19 asked the witness. I didn't go into the surge pressures or
16:17 20 anything. This is something he should have done on direct.
16:17 21 It's outside the scope of anything I asked the witness.

16:17 22 **MR. REGAN:** I think he asked him about it. I have
16:17 23 one more question, and I'm done. He asked him about this
16:17 24 testing. I just wanted to put the numbers in there. He was
16:17 25 asking about pressures for conversion, and I am putting the

BRENT LIRETTE - REDIRECT

1 pressures for this testing conversion that this witness
2 personally observed.

3 **THE COURT:** Is this document in evidence?

4 **MR. HILL:** Yes.

5 **MR. REGAN:** Yes, it is, Your Honor.

6 **THE COURT:** All right. Go ahead. I'll let you ask
7 one more question.

8 **BY MR. REGAN:**

9 **Q.** Did the float collars convert in each of these surge
10 tests, Mr. Lirette?

11 **A.** Yes.

12 **MR. REGAN:** Thank you, Mr. Lirette.

13 **THE COURT:** Thank you, sir.

14 Next witness.

15 **MR. BROCK:** Your Honor, Mike Brock for BP. I wanted
16 to address a witness issue at this point, just to make a
17 proposal to the Court.

18 **THE COURT:** Okay.

19 **MR. BROCK:** Our next witness is Mr. Zatarain, who is
20 our BOP expert on batteries and solenoids. We had talked about
21 that this morning, that we substituted him in when we let some
22 of our other witnesses go in response to the Court's suggestion
23 about Bly team members being duplicative, so we released
24 Mr. Corser and Mr. Cowie. I am mentioning this because I want
25 to mention it in the context of Dr. Azar also.

16:18 1 So our team has conferred and we have talked
16:18 2 about this. And if it's acceptable to the Court, we are
16:18 3 willing to drop Dr. Azar as one of our witnesses to present
16:19 4 live at trial.

16:19 5 And what I was going to propose is that we put
16:19 6 on Mr. Zatarain for direct. He is available today. We could
16:19 7 get going with him today, but to put him on for direct and
16:19 8 cross tomorrow. If I release Dr. Azar, I do not have another
16:19 9 live witness for tomorrow. So that's the issue that I'm
16:19 10 raising with the Court now, as we had planned for Dr. Azar for
16:19 11 tomorrow.

16:19 12 I would add that I think we have made very good
16:19 13 progress on our case. I think we will easily finish within the
16:19 14 time that I suggested to the Court. We may well even finish
16:19 15 next week in terms of what we are doing.

16:19 16 **THE COURT:** Okay. So it sounds like you are
16:19 17 proposing or suggesting that we resume with Mr. Zatarain in the
16:20 18 morning.

16:20 19 **MR. BROCK:** Yes, sir. That would be our only witness
16:20 20 tomorrow.

16:20 21 **THE COURT:** How long do you expect he will take?

16:20 22 **MR. BROCK:** I suspect he will be a half a day.
16:20 23 That's my best guess. We are trying to do our exams
16:20 24 efficiently and get to the point. We plan to do that with him
16:20 25 tomorrow. I'm thinking he is probably a couple hours on direct

16:20 1 and then cross.

16:20 2 **THE COURT:** Any other -- I'm thinking of -- I was
16:20 3 hoping not to lose a half a day tomorrow. Do we have any
16:20 4 videos you could play?

16:20 5 **MR. BROCK:** I have some video that is before
16:20 6 Your Honor on a couple of the cement witnesses, where there are
16:20 7 objections.

16:20 8 **THE COURT:** I'm going to look at that this evening.
16:20 9 I haven't been able to look at that yet. There's some
16:20 10 objection from Halliburton.

16:20 11 **MR. GODWIN:** Just to a few lines in one deposition
16:20 12 only, Your Honor.

16:20 13 **THE COURT:** How long will these depositions take?

16:21 14 **MR. BROCK:** I think they're, in total, maybe 25 or
16:21 15 30 minutes, not more than that.

16:21 16 I apologize for not having a witness here. We
16:21 17 have cut some witnesses. And, of course, letting Dr. Azar go,
16:21 18 that would have taken up a significant amount of time tomorrow.

16:21 19 **MR. GODWIN:** Your Honor, Don Godwin with Halliburton.

16:21 20 Mr. Brock and I did talk about Dr. Azar. We had
16:21 21 hoped to have him here, Halliburton had, but we are in
16:21 22 agreement and have no objection to them releasing him.

16:21 23 **THE COURT:** Anybody else object?

16:21 24 All right. I guess that will be our plan. We
16:21 25 will recess now until 8:00 in the morning.

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(Proceedings adjourned.)

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CERTIFICATE

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I, Toni Doyle Tusa, CCR, FCRR, Official Court Reporter for the United States District Court, Eastern District of Louisiana, do hereby certify that the foregoing is a true and correct transcript, to the best of my ability and understanding, from the record of the proceedings in the above-entitled matter.

s/ Toni Doyle Tusa
Toni Doyle Tusa, CCR, FCRR
Official Court Reporter

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1 1.88.1 [1] 8276/24 10 [8] 8246/7 8253/2 8270/25 8282/5 8302/11 8337/9 8345/7 8345/8 10 minutes [1] 8360/9 10-CV-02771 [1] 8246/7 10-CV-4536 [1] 8246/9 10-MD-2179 [1] 8246/4 10-minute [1] 8308/17 10.5 barrels [1] 8369/22 1000 [1] 8250/17 1001 [1] 8250/10 101 [1] 8247/16 11 [3] 8297/7 8297/10 8297/12 11.5 barrels [1] 8370/16 1100 [1] 8250/6 1110 [1] 8250/20 11:00 [1] 8299/2 11:30 [1] 8273/19 11:30 a.m [1] 8272/13 12-hour [1] 8264/3 1201 [2] 8250/3 8251/5 1243 [1] 8272/8 13 [1] 8341/19 13,000 psi [1] 8330/15 1300 [1] 8358/22 1300 pounds [1] 8356/17 1300 psi [2] 8357/2 8359/1 1308 [1] 8247/19 133 barrels [1] 8269/24 1331 [1] 8251/8 14 [5] 8258/25 8261/4 8261/10 8261/12 8302/10 14-and-14 [2] 8258/25 8261/10 1400 [4] 8278/2 8278/8 8279/8 8280/9 1400 pounds [1] 8278/12 1400 psi [2] 8307/12 8368/21 14271 [1] 8248/22 1430 [1] 8273/21 15 [2] 8361/13 8361/14 15 minutes [1] 8282/5 1500 [1] 8273/21 16 [7] 8262/18 8266/9 8298/18 8313/8 8341/5 8361/15 8362/4 1601 [1] 8247/3	3 30 [3] 8311/9 8311/12 8327/13 30 minutes [1] 8373/15 300 [4] 8249/23 8364/9 8364/14 8366/2 3000 psi [1] 8267/22 3036 psi [1] 8369/20 3089 [1] 8250/17 3142 [3] 8357/21 8357/24 8358/19 3142 pounds [1] 8357/5 3142 psi [2] 8355/7 8359/3 32 pounds [1] 8319/12	5 5 barrels [2] 8271/7 8364/15 50 [1] 8327/18 50/50 [1] 8327/18 500 [6] 8246/20 8249/9 8251/10 8357/3 8359/5 8359/6 500 psi [1] 8368/7 500 to [1] 8363/25 5000 [2] 8249/19 8369/3 5000 psi [2] 8363/21 8368/9 504 [1] 8251/11 5395 [1] 8248/10 556 [2] 8246/20 8303/5 57 [1] 8327/17 589-7778 [1] 8251/11
0 00546 [2] 8341/2 8341/9 01134 [1] 8339/20 01220 [2] 8341/12 8341/19 01256 [1] 8341/1 02771 [1] 8246/7 03527 [1] 8337/23 0472 [1] 8365/15 0476 [1] 8367/14 0546 [1] 8341/2	0 00546 [2] 8341/2 8341/9 01134 [1] 8339/20 01220 [2] 8341/12 8341/19 01256 [1] 8341/1 02771 [1] 8246/7 03527 [1] 8337/23 0472 [1] 8365/15 0476 [1] 8367/14 0546 [1] 8341/2	6 600 [3] 8247/10 8247/13 8250/17 6000 psi [1] 8359/9 601 [1] 8247/6 60654 [1] 8249/24 618 [1] 8247/22 62.80 [1] 8329/24 6280Q125 [1] 8319/3 673 barrels [1] 8271/5
1 1.88.1 [1] 8276/24 10 [8] 8246/7 8253/2 8270/25 8282/5 8302/11 8337/9 8345/7 8345/8 10 minutes [1] 8360/9 10-CV-02771 [1] 8246/7 10-CV-4536 [1] 8246/9 10-MD-2179 [1] 8246/4 10-minute [1] 8308/17 10.5 barrels [1] 8369/22 1000 [1] 8250/17 1001 [1] 8250/10 101 [1] 8247/16 11 [3] 8297/7 8297/10 8297/12 11.5 barrels [1] 8370/16 1100 [1] 8250/6 1110 [1] 8250/20 11:00 [1] 8299/2 11:30 [1] 8273/19 11:30 a.m [1] 8272/13 12-hour [1] 8264/3 1201 [2] 8250/3 8251/5 1243 [1] 8272/8 13 [1] 8341/19 13,000 psi [1] 8330/15 1300 [1] 8358/22 1300 pounds [1] 8356/17 1300 psi [2] 8357/2 8359/1 1308 [1] 8247/19 133 barrels [1] 8269/24 1331 [1] 8251/8 14 [5] 8258/25 8261/4 8261/10 8261/12 8302/10 14-and-14 [2] 8258/25 8261/10 1400 [4] 8278/2 8278/8 8279/8 8280/9 1400 pounds [1] 8278/12 1400 psi [2] 8307/12 8368/21 14271 [1] 8248/22 1430 [1] 8273/21 15 [2] 8361/13 8361/14 15 minutes [1] 8282/5 1500 [1] 8273/21 16 [7] 8262/18 8266/9 8298/18 8313/8 8341/5 8361/15 8362/4 1601 [1] 8247/3	3 30 [3] 8311/9 8311/12 8327/13 30 minutes [1] 8373/15 300 [4] 8249/23 8364/9 8364/14 8366/2 3000 psi [1] 8267/22 3036 psi [1] 8369/20 3089 [1] 8250/17 3142 [3] 8357/21 8357/24 8358/19 3142 pounds [1] 8357/5 3142 psi [2] 8355/7 8359/3 32 pounds [1] 8319/12	7 7 pounds [1] 8361/3 7-5395 [1] 8248/10 7-inch [11] 8317/25 8318/2 8319/4 8319/10 8321/6 8326/5 8329/23 8330/16 8331/3 8331/4 8331/20 7/8 [1] 8339/11 700 psi [4] 8357/3 8359/5 8359/6 8363/25

<p>7</p> <p>701 [2] 8249/16 8249/19 70113 [1] 8246/24 70130 [5] 8247/7 8247/13 8248/7 8249/17 8251/11 70139 [1] 8249/20 70163 [1] 8250/7 70360 [1] 8247/16 70458 [1] 8247/19 70501 [1] 8250/18 70502 [1] 8246/21 706.6 [1] 8269/20 708.1 [1] 8268/19 708.5 [1] 8268/25 70801 [1] 8247/23 70804 [1] 8249/13 75270 [1] 8251/5 759.1.1.TO [2] 8304/2 8304/17 7597.5 [1] 8369/11 7597.6 [1] 8370/1 7598.19 [1] 8354/6 7611 [1] 8248/16 77002 [1] 8250/10 77006 [1] 8248/4 77010 [1] 8251/8 77098 [1] 8250/21 7778 [1] 8251/11 7:00 until [1] 8270/3 7:30 a.m [1] 8263/13</p>	<p>8259/1 8260/19 8261/5 8262/13 8264/24 8266/11 8266/19 8267/5 8268/13 8269/10 8270/14 8272/8 8273/3 8274/16 8274/17 8277/11 8278/2 8278/7 8279/7 8280/11 8281/4 8281/7 8281/21 8282/11 8282/12 8282/23 8283/8 8284/6 8286/7 8286/10 8287/15 8288/16 8289/3 8290/19 8291/25 8292/7 8292/20 8293/4 8293/12 8295/19 8297/7 8298/2 8298/17 8299/1 8300/15 8304/12 8305/18 8306/5 8307/4 8307/8 8308/3 8308/17 8309/13 8316/3 8316/13 8318/7 8318/17 8321/3 8321/21 8322/1 8322/15 8323/23 8324/6 8325/21 8325/22 8327/4 8327/14 8330/21 8331/13 8333/18 8333/22 8334/5 8335/5 8336/18 8336/19 8336/22 8338/12 8338/21 8339/6 8339/13 8343/10 8344/21 8345/16 8345/19 8347/17 8348/2 8349/4 8351/20 8352/23 8353/25 8356/1 8356/4 8357/10 8357/11 8357/15 8357/25 8358/13 8360/1 8360/13 8362/22 8363/24 8366/14 8367/8 8369/16 8370/22 8370/23 8370/25 8371/20 8371/23 8372/2 8373/20 above [9] 8275/8 8322/19 8334/20 8357/2 8359/6 8359/8 8360/5 8368/1 8374/9 above-entitled [1] 8374/9 Abramson [1] 8247/5 Absolutely [1] 8264/19 abundantly [1] 8352/4 acceptable [3] 8326/22 8332/6 8372/2 accepted [1] 8314/12 access [2] 8262/22 8292/14 accident [2] 8290/20 8357/10 According [1] 8295/18 accounts [1] 8270/16 accumulate [1] 8359/8 accurate [2] 8254/16 8342/3 achieve [1] 8364/4 acquired [1] 8344/16 across [1] 8366/24 act [1] 8298/13 actions [1] 8266/6 activated [2] 8344/25 8366/9 activities [1] 8269/22 activity [3] 8267/8 8271/10 8271/13 acts [1] 8316/21 actual [2] 8292/22 8344/18 actually [51] 8275/4 8275/21 8277/15 8278/2 8292/23 8298/20 8300/10 8300/13 8301/23 8301/25 8312/8 8315/16 8315/18 8316/21 8317/2 8317/3 8317/14 8317/15 8317/20 8318/11 8319/22 8320/5 8322/19 8322/20 8323/5 8323/17 8324/5 8324/21 8324/21 8328/4 8328/13 8328/14 8330/2 8331/7 8331/9 8331/12 8331/15 8331/22 8335/13 8336/14 8338/9 8339/11 8340/5 8341/15 8345/5 8348/18 8349/23 8350/6 8358/14 8365/7 8366/1 add [1] 8372/12 addition [2] 8311/4 8313/4 additional [4] 8282/22 8309/22 8317/3 8325/3 address [3] 8259/17 8263/21 8371/16 adequate [3] 8323/16 8324/5 8324/11 adequately [2] 8322/18 8332/6 adjourned [1] 8374/1 Administration [1] 8257/2 admit [1] 8254/9 admitted [8] 8253/13 8253/21 8254/19</p>	<p>8254/25 8255/7 8255/9 8256/7 8316/4 advance [1] 8288/19 advanced [3] 8313/23 8314/3 8314/4 advantages [5] 8326/25 8327/25 8328/1 8328/2 8329/1 advice [3] 8261/20 8299/23 8300/4 advised [1] 8262/20 affect [4] 8333/12 8333/15 8333/23 8336/2 affected [2] 8333/1 8333/8 after [21] 8257/6 8270/4 8272/10 8275/1 8277/17 8289/20 8292/13 8292/15 8293/8 8293/10 8293/24 8296/7 8296/17 8311/17 8312/12 8317/5 8336/20 8351/7 8358/3 8358/6 8362/2 afternoon [13] 8246/14 8253/1 8253/4 8253/15 8285/11 8297/25 8310/21 8332/16 8337/14 8337/16 8343/15 8343/25 8363/4 afterwards [1] 8296/11 again [5] 8255/3 8261/10 8310/7 8315/25 8360/22 against [2] 8317/23 8351/7 ago [2] 8272/14 8295/10 agree [5] 8285/23 8301/12 8301/14 8303/16 8366/22 agreed [1] 8303/24 agreement [2] 8310/18 8373/22 ahead [4] 8305/7 8310/9 8367/6 8371/6 aided [1] 8251/16 al [2] 8246/8 8246/11 Alabama [7] 8247/4 8249/7 8249/8 8249/10 8297/18 8342/10 8362/8 alarms [1] 8283/17 Algeria [3] 8260/7 8260/8 8260/12 all [59] 8253/12 8255/21 8256/7 8262/5 8265/16 8266/7 8266/10 8270/16 8270/22 8284/19 8285/5 8298/8 8298/10 8301/9 8303/9 8308/11 8308/23 8310/6 8310/17 8312/5 8312/21 8314/9 8315/24 8315/25 8316/4 8317/21 8318/22 8322/18 8323/15 8323/22 8324/2 8327/19 8327/21 8330/10 8330/10 8331/11 8331/15 8332/19 8335/25 8338/11 8339/24 8342/6 8342/16 8346/2 8348/22 8355/17 8355/19 8356/9 8357/1 8358/18 8358/21 8359/14 8361/17 8362/7 8362/16 8365/25 8367/5 8371/6 8373/24 ALLAN [1] 8249/15 allow [2] 8317/9 8354/4 allowable [2] 8322/19 8323/22 allowed [1] 8309/15 allowing [1] 8350/22 along [1] 8264/14 already [4] 8254/4 8291/24 8353/25 8361/12 also [23] 8253/22 8253/23 8254/14 8259/16 8263/4 8266/4 8267/1 8280/12 8287/18 8299/22 8313/10 8317/8 8320/16 8323/6 8323/18 8324/10 8328/5 8349/18 8354/1 8360/15 8361/8 8366/8 8371/25 aluminum [3] 8318/21 8349/7 8349/10 always [10] 8265/25 8285/2 8306/17 8314/23 8318/13 8322/1 8324/25 8330/9 8330/25 8342/5 am [11] 8258/17 8258/21 8285/25 8286/14 8286/18 8293/3 8297/10 8345/12 8346/4 8370/25 8371/24 AMERICA [8] 8246/10 8248/9 8248/13 8248/19 8249/3 8249/19 8249/22 8250/3 American [2] 8313/6 8313/14</p>
<p>8</p> <p>8 barrels [1] 8364/5 8015 [1] 8368/11 8098 [2] 8316/6 8316/6 8098.1.1 [1] 8315/3 8098.11.1 [1] 8318/15 8098.11.2 [1] 8321/22 8098.19.1 [2] 8322/21 8331/17 8098.19.2 [1] 8323/8 8098.27.1 [1] 8311/24 8098.30.1 [1] 8313/10 8098.31.1 [1] 8313/24 8098.7.2 [1] 8311/8 820 [1] 8246/23 87132 [1] 8347/18 8:00 in [1] 8373/25 8:30 [3] 8283/10 8305/20 8307/9 8:52 [1] 8307/10</p>	<p>Abramson [1] 8247/5 Absolutely [1] 8264/19 abundantly [1] 8352/4 acceptable [3] 8326/22 8332/6 8372/2 accepted [1] 8314/12 access [2] 8262/22 8292/14 accident [2] 8290/20 8357/10 According [1] 8295/18 accounts [1] 8270/16 accumulate [1] 8359/8 accurate [2] 8254/16 8342/3 achieve [1] 8364/4 acquired [1] 8344/16 across [1] 8366/24 act [1] 8298/13 actions [1] 8266/6 activated [2] 8344/25 8366/9 activities [1] 8269/22 activity [3] 8267/8 8271/10 8271/13 acts [1] 8316/21 actual [2] 8292/22 8344/18 actually [51] 8275/4 8275/21 8277/15 8278/2 8292/23 8298/20 8300/10 8300/13 8301/23 8301/25 8312/8 8315/16 8315/18 8316/21 8317/2 8317/3 8317/14 8317/15 8317/20 8318/11 8319/22 8320/5 8322/19 8322/20 8323/5 8323/17 8324/5 8324/21 8324/21 8328/4 8328/13 8328/14 8330/2 8331/7 8331/9 8331/12 8331/15 8331/22 8335/13 8336/14 8338/9 8339/11 8340/5 8341/15 8345/5 8348/18 8349/23 8350/6 8358/14 8365/7 8366/1 add [1] 8372/12 addition [2] 8311/4 8313/4 additional [4] 8282/22 8309/22 8317/3 8325/3 address [3] 8259/17 8263/21 8371/16 adequate [3] 8323/16 8324/5 8324/11 adequately [2] 8322/18 8332/6 adjourned [1] 8374/1 Administration [1] 8257/2 admit [1] 8254/9 admitted [8] 8253/13 8253/21 8254/19</p>	<p>8 barrels [1] 8364/5 8015 [1] 8368/11 8098 [2] 8316/6 8316/6 8098.1.1 [1] 8315/3 8098.11.1 [1] 8318/15 8098.11.2 [1] 8321/22 8098.19.1 [2] 8322/21 8331/17 8098.19.2 [1] 8323/8 8098.27.1 [1] 8311/24 8098.30.1 [1] 8313/10 8098.31.1 [1] 8313/24 8098.7.2 [1] 8311/8 820 [1] 8246/23 87132 [1] 8347/18 8:00 in [1] 8373/25 8:30 [3] 8283/10 8305/20 8307/9 8:52 [1] 8307/10</p>
<p>9</p> <p>9 7/8 [5] 8317/25 8319/3 8321/5 8326/5 8339/8 9 7/8 62.80 [1] 8329/24 9 7/8-inch [2] 8318/1 8338/16 9-7/8 [1] 8338/11 90071 [1] 8250/14 94005 [1] 8249/13 94102 [1] 8248/11 9:00 [2] 8283/11 8305/20 9:00 p.m [1] 8307/10 9th [1] 8247/13</p>	<p>actual [2] 8292/22 8344/18 actually [51] 8275/4 8275/21 8277/15 8278/2 8292/23 8298/20 8300/10 8300/13 8301/23 8301/25 8312/8 8315/16 8315/18 8316/21 8317/2 8317/3 8317/14 8317/15 8317/20 8318/11 8319/22 8320/5 8322/19 8322/20 8323/5 8323/17 8324/5 8324/21 8324/21 8328/4 8328/13 8328/14 8330/2 8331/7 8331/9 8331/12 8331/15 8331/22 8335/13 8336/14 8338/9 8339/11 8340/5 8341/15 8345/5 8348/18 8349/23 8350/6 8358/14 8365/7 8366/1 add [1] 8372/12 addition [2] 8311/4 8313/4 additional [4] 8282/22 8309/22 8317/3 8325/3 address [3] 8259/17 8263/21 8371/16 adequate [3] 8323/16 8324/5 8324/11 adequately [2] 8322/18 8332/6 adjourned [1] 8374/1 Administration [1] 8257/2 admit [1] 8254/9 admitted [8] 8253/13 8253/21 8254/19</p>	<p>9 7/8 [5] 8317/25 8319/3 8321/5 8326/5 8339/8 9 7/8 62.80 [1] 8329/24 9 7/8-inch [2] 8318/1 8338/16 9-7/8 [1] 8338/11 90071 [1] 8250/14 94005 [1] 8249/13 94102 [1] 8248/11 9:00 [2] 8283/11 8305/20 9:00 p.m [1] 8307/10 9th [1] 8247/13</p>
<p>A</p> <p>A annulus [1] 8321/10 a.m [2] 8263/13 8272/13 abandonment [11] 8273/11 8273/13 8286/5 8286/7 8286/10 8286/10 8286/11 8286/12 8320/13 8336/24 8337/4 ability [1] 8374/7 able [5] 8272/12 8284/1 8349/18 8360/7 8373/9 about [114] 8256/23 8258/8 8258/10</p>	<p>add [1] 8372/12 addition [2] 8311/4 8313/4 additional [4] 8282/22 8309/22 8317/3 8325/3 address [3] 8259/17 8263/21 8371/16 adequate [3] 8323/16 8324/5 8324/11 adequately [2] 8322/18 8332/6 adjourned [1] 8374/1 Administration [1] 8257/2 admit [1] 8254/9 admitted [8] 8253/13 8253/21 8254/19</p>	<p>ALLAN [1] 8249/15 allow [2] 8317/9 8354/4 allowable [2] 8322/19 8323/22 allowed [1] 8309/15 allowing [1] 8350/22 along [1] 8264/14 already [4] 8254/4 8291/24 8353/25 8361/12 also [23] 8253/22 8253/23 8254/14 8259/16 8263/4 8266/4 8267/1 8280/12 8287/18 8299/22 8313/10 8317/8 8320/16 8323/6 8323/18 8324/10 8328/5 8349/18 8354/1 8360/15 8361/8 8366/8 8371/25 aluminum [3] 8318/21 8349/7 8349/10 always [10] 8265/25 8285/2 8306/17 8314/23 8318/13 8322/1 8324/25 8330/9 8330/25 8342/5 am [11] 8258/17 8258/21 8285/25 8286/14 8286/18 8293/3 8297/10 8345/12 8346/4 8370/25 8371/24 AMERICA [8] 8246/10 8248/9 8248/13 8248/19 8249/3 8249/19 8249/22 8250/3 American [2] 8313/6 8313/14</p>

<p>A</p> <p>among [1] 8274/17 amount [4] 8267/5 8270/21 8294/8 8373/18 amounts [1] 8259/5 analysis [11] 8315/21 8320/11 8321/19 8323/23 8324/6 8329/8 8329/12 8329/13 8329/25 8330/10 8331/10 analyze [6] 8318/18 8320/7 8322/7 8329/9 8336/14 8336/16 analyzed [1] 8321/18 analyzing [1] 8319/21 and -out [1] 8292/7 Anderson [16] 8280/20 8281/11 8281/15 8281/18 8281/24 8293/6 8298/7 8301/19 8302/2 8302/9 8303/21 8304/13 8304/17 8304/18 8305/3 8305/12 ANDREW [1] 8249/22 Angeles [1] 8250/14 animated [1] 8316/15 annular [18] 8275/8 8277/14 8280/24 8282/10 8302/14 8302/23 8309/24 8320/17 8320/23 8326/2 8326/9 8326/15 8328/8 8328/10 8328/16 8328/18 8328/22 8328/24 annuli [1] 8321/8 annulus [5] 8267/3 8275/8 8321/9 8321/10 8321/12 another [8] 8278/16 8299/2 8320/16 8325/23 8339/19 8341/13 8365/7 8372/8 answer [9] 8291/8 8291/10 8294/22 8295/9 8301/6 8337/2 8359/18 8360/7 8360/11 answered [2] 8282/11 8361/4 ANTHONY [1] 8248/6 any [56] 8253/12 8253/20 8254/17 8254/24 8255/8 8255/21 8259/17 8259/17 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