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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,	*	March 27, 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 &amp; PRODUCTION,</i>	*	
<i>INC., et al</i>	*	
	*	
* * * * *		

DAY 19, AFTERNOON SESSION  
TRANSCRIPT OF NONJURY TRIAL  
BEFORE THE HONORABLE CARL J. BARBIER  
UNITED STATES DISTRICT JUDGE

Appearances:

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I N D E X

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1 AFTERNOON SESSION

2 (March 27, 2013)

12:59 3 THE COURT: Please be seated, everyone. All right.  
13:19 4 Preliminary matters?

13:19 5 MR. IRPINO: Yes, your Honor. Anthony Irpino for the  
13:19 6 PSC. We have conferred with Transocean and we have agreement  
13:19 7 on the PSC's list of exhibits and demonstratives used in  
13:19 8 connection with David Young's testimony of March 25, 2013. We  
13:19 9 offer, file, and introduce those into evidence.

13:19 10 THE COURT: Any objections?

13:19 11 Without objection, those are admitted.

13:20 12 MR. ROBERTS: Good afternoon, Your Honor. Alex  
13:20 13 Roberts for Cameron.

13:20 14 Cameron has circulated its exhibits and  
13:20 15 demonstratives used with its examination of Mr. Ambrose  
13:20 16 yesterday. We have not received any objections and we move to  
13:20 17 admit them at this time.

13:20 18 MR. BRIAN: Your Honor, the Ambrose team is not here.  
13:20 19 I know we're going to take up ours next week. May I ask that  
13:20 20 we defer that until I have a chance to -- I just don't know the  
13:20 21 answer. I'm sure we don't, but I -- but I don't positively  
13:20 22 know.

13:20 23 THE COURT: That's fine.

13:20 24 MR. ROBERTS: Thank you, Your Honor.

13:20 25 THE COURT: Mr. Hill?



13:20 1 MR. HILL: Thank you, Your Honor.

13:20 2 THE COURT: I've been asked to ask you to slow down a  
13:20 3 little bit, Mr. Hill. Speak slowly.

13:20 4 MR. HILL: One of your court reporters put it on here  
13:20 5 for me. I will do so.

13:20 6 RICHARD STRICKLAND,  
13:20 7 having been duly sworn, testified as follows:

13:20 8 DIRECT EXAMINATION

13:20 9 BY MR. HILL:

13:20 10 Q. Welcome back, Dr. Strickland.

13:20 11 Before we took the break for lunch, we were starting  
13:20 12 to get into the basic concepts, and petrophysics being as  
13:21 13 technical as it is, I would like to just talk about some basic  
13:21 14 concepts so that when you talk about these and with respect to  
13:21 15 your opinions, it's not the first time the Court has heard it.

13:21 16 Now, I think you explained previously what wireline  
13:21 17 tools were and how they gather data, correct?

13:21 18 A. Yes.

13:21 19 Q. With respect to the specific measurements -- some of the  
13:21 20 specific measurements that wireline tools take, let's talk  
13:21 21 about some of those and what they mean.

13:21 22 Can you explain to the Court what "porosity" is.

13:21 23 A. Porosity is a measure of the void space in a rock. For  
13:21 24 any bulk volume of rock, porosity is how many holes there are  
13:21 25 in the rock compared to that bulk volume. And it is where the

## RICHARD STRICKLAND - DIRECT

1 hydrocarbons and water reside.

2 Q. Okay. You bring up an interesting thing. You say

3 "hydrocarbons and water." Are hydrocarbons typically found in  
4 a hundred percent hydrocarbon concentration?

5 A. No, it's not.

6 Q. Is it always found with some percentage of water in it?

7 A. Almost always, yes.

8 Q. Okay. And so there is this concept of "water saturation."  
9 Can you explain to the Court what water saturation is?

10 A. Yes. It is the portion of the porosity that contains  
11 water. Now, water is in every pore. You can think of -- like  
12 this room, just fill it full of basketballs. And so the  
13 basketballs would be sand grains and the spaces between the  
14 basketballs would be the void space, which as a measure of the  
15 entire bulk volume of the room would be the porosity. So water  
16 is contained in every pore, almost always every pore space at  
17 some level.

18 Q. So the specific measurement of water saturation, my  
19 understanding is it's indicated as an S subscript W. Right?

20 A. Yes. S stands for saturation and the subscript tells you  
21 what it is.

22 Q. What is the specific -- what does Sw or water saturation  
23 actually mean?

24 A. It's the percentage of the total pore volume that is water  
25 and the total pore volume -- those saturations must equal

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1 100 percent.

2 Q. Great. So by way of example, if I have water saturation  
3 of 40 percent, what is my saturation of hydrocarbon within that  
4 pore space?

5 A. It would be 60 percent.

6 Q. And if I had 60 percent water saturation, what would my  
7 saturation of hydrocarbon be within that pore space?

8 A. It would be 40 percent.

9 Q. Now, the last general concept I wanted to orient the Court  
10 to is this concept of "permeability." What is permeability?

11 A. Permeability is a measure of the resistance to fluid  
12 flowing through the rock. So, again, my analogy of a room full  
13 of basketballs, the space between basketballs will be a pore  
14 but each pore space is usually connected to the next pore space  
15 and it would be choked down by the shape of all the basketballs  
16 and so that's really a resistance then to letting any fluid  
17 flow through that pore space.

18 Q. So if the permeability of a rock or a sand is determined  
19 and a value is given for that permeability, what's the value  
20 that's given for permeability?

21 A. The unit is measured in darcys or millidarcys,  
22 one-thousandth of a darcy. A typical number is like 10, 100,  
23 500 millidarcys.

24 Q. So if a particular value is given to the permeability of a  
25 rock, a petrophysicist such as yourself could actually come to

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13:24 1 the determination as to whether or not that particular rock  
13:24 2 would allow something to either flow in or flow out of it,  
13:24 3 correct?

13:24 4 A. Yes.

13:24 5 Q. The other thing that we are going to talk about in a  
13:24 6 minute -- and we ought to jump right to it -- and that is  
13:24 7 something called a triple combination log, referred to as a  
13:24 8 "triple combo"?

13:25 9 A. That's correct.

13:25 10 Q. Can you explain -- now, this is one of the wireline logs  
13:25 11 that you spoke of before, correct?

13:25 12 A. That is correct.

13:25 13 MR. HILL: Could you please bring up TREX-3540.

13:25 14 BY MR. HILL:

13:25 15 Q. While he is bringing that up, do you have a triple  
13:25 16 combination log there at the --

13:25 17 A. I do.

13:25 18 MR. HILL: Just so that the Court understands why we  
13:25 19 are dealing with the world's longest pdf file electronically,  
13:25 20 this is the format in which these logs are actually printed,  
13:25 21 Your Honor. It's an accordion format and it would stretch out  
13:25 22 10 or 12 feet.

13:25 23 BY MR. HILL:

13:25 24 Q. Do you want to hold it up so he can see it?

13:25 25 A. (Complies.)

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13:25 1           There you go.

13:25 2       **Q.**   Thank you.

13:25 3           Now, up on the board we have called up TREX-3540.

13:25 4       Can you explain to the Court what this is.

13:25 5       **A.**   This is the -- the Schlumberger product name is called  
13:25 6       RT Scanner, but it's a triple combo. What those words mean is  
13:25 7       there's three kinds of measurements being made. There's  
13:25 8       resistivity measurements and some density measurements by two  
13:26 9       different tools and also a gamma ray measurement, but the  
13:26 10       generic name is triple combo.

13:26 11       **Q.**   All right. Before we get to those actual tracks and what  
13:26 12       they record, I want to look at the header information and have  
13:26 13       you tell the Court what we can derive from the header  
13:26 14       information.

13:26 15           Does this tell you -- what does this logging date  
13:26 16       reference?

13:26 17       **A.**   It is the date that these tools were lowered into the hole  
13:26 18       and retrieved, so this was the 10th of April 2010.

13:26 19       **Q.**   Do you know what driller depth -- or depth of driller is  
13:26 20       at 18,360?

13:26 21       **A.**   Yes, that's the total depth that the well was drilled to.

13:26 22       **Q.**   Okay. Right under that there's something called the  
13:26 23       Schlumberger depth and it's down at 18,280, a difference of  
13:26 24       80 feet between that and the driller depth. Can you explain to  
13:26 25       the Court what that difference is?

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13:26 1 A. Yes. When Schlumberger lowered their tools into the hole,  
13:26 2 they got down to 18,280 feet and the tools wouldn't go any  
13:27 3 lower.

13:27 4 Q. Do you recall reading the "Remarks" section on this triple  
13:27 5 combo log?

13:27 6 A. Yes.

13:27 7 Q. Do you recall what the comment was with respect to why it  
13:27 8 wasn't able to go down that last 80 feet?

13:27 9 A. "Fill in the hole."

13:27 10 Q. We will get to it so you are not guessing, but before we  
13:27 11 do that, let's finish up on this page.

13:27 12 At the bottom here, it has "Recorded by" and  
13:27 13 "Witnessed by." Do you recognize those names?

13:27 14 A. Yes. Victor Emanuel and Galina Skripnikova.

13:27 15 Q. Who --

13:27 16 A. Galina Skripnikova and Stuart Lacy.

13:27 17 Q. Who are they?

13:27 18 A. Galina and Stuart Lacy are employees of British Petroleum.

13:27 19 MR. HILL: Can we go to the "Remarks" section,  
13:27 20 please. Let's just pull that up right there.

13:27 21 BY MR. HILL:

13:27 22 Q. At the bottom, these ten remarks, there's a Remark 10.  
13:28 23 Could you please identify or read to the Court what it says  
13:28 24 there?

13:28 25 A. "It was not possible to reach TD, total depth, due to

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13:28 1 borehole conditions and the client requested to start logging  
13:28 2 from 18,280 feet."

13:28 3 Q. So what do you understand was the reason why -- according  
13:28 4 to your analysis of this document, why the bottom 80 feet was  
13:28 5 not covered by this log?

13:28 6 MR. REGAN: Objection, Your Honor, speculation.

13:28 7 THE COURT: Sustained.

13:28 8 BY MR. HILL:

13:28 9 Q. Do you read these remarks, as a petrophysicist, when you  
13:28 10 do the logs, to understand the conditions under which a log is  
13:28 11 actually run?

13:28 12 MR. REGAN: Objection, Your Honor, outside the scope  
13:28 13 of his report.

13:28 14 MR. HILL: Your Honor, this is predicate information  
13:28 15 about reading a log and has nothing to do with his opinion.

13:28 16 MR. REGAN: He can read the words. I think he has --  
13:28 17 but I think you are asking him to speculate about what the  
13:28 18 words mean. And that's why I --

13:28 19 MR. HILL: I'm asking him in his field, do the  
13:28 20 remarks actually make sense and does he have to interpret them  
13:28 21 for any reason. There's obviously a reason they are there.

13:29 22 THE COURT: I don't know how you could -- unless he  
13:29 23 has more information than what's on here, I don't know how he  
13:29 24 could answer that question. It just says "Borehole  
13:29 25 Conditions." That could be a number of things.

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13:29 1 MR. HILL: We can move on from that. It's really not  
13:29 2 important.

13:29 3 BY MR. HILL:

13:29 4 Q. You understand that when you look at the log, that the log  
13:29 5 didn't cover the last 80 feet for some wellbore condition  
13:29 6 reason, correct?

13:29 7 A. Correct.

13:29 8 MR. HILL: Let's go to the headers of the three  
13:29 9 tracks, please. All right. And let's blow up this part right  
13:29 10 here. Perfect.

13:29 11 BY MR. HILL:

13:29 12 Q. Now, we have here header information in three different  
13:29 13 logarithmic tracks, correct?

13:29 14 A. There are three tracks, only one is logarithmic.

13:29 15 Q. There's a small track here, which is the depth track,  
13:29 16 correct?

13:29 17 A. That's correct.

13:29 18 Q. I would like to focus on these three larger tracks. The  
13:29 19 track all the way to the left, can you explain to the Court  
13:29 20 what that is?

13:30 21 A. This track is where several measurements are recorded  
13:30 22 by -- and printed out on this paper, and the one -- and most  
13:30 23 important for our purpose here today is the gamma ray curve.  
13:30 24 And it will be in blue on -- the blue line, you can see just  
13:30 25 the top of it there down below the header.



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13:30 1 Q. What is the significance of a gamma ray measurement?

13:30 2 A. The gamma ray measures the natural radiation of the rock  
13:30 3 as the tool passes it.

13:30 4 Q. So why would you look at gamma ray? What does it help you  
13:30 5 to determine?

13:30 6 A. We are interested in productive sands and -- there's two  
13:30 7 kinds of rock, principally, if you break it up into the  
13:30 8 biggest, shales and sands. Shales cause the gamma ray to move  
13:30 9 to the right, to high values. Sands are much less radioactive,  
13:30 10 and so when the tool passes the sand, the gamma ray moves to  
13:31 11 the left.

13:31 12 Q. So when you are looking for hydrocarbon sands, are you  
13:31 13 looking for an excursion that moves left?

13:31 14 A. Yes, you are looking for the gamma ray to jump left.

13:31 15 Q. Let's go past the depth track and go to this track right  
13:31 16 there. What does this track measure?

13:31 17 A. It's a recording of the resistivity of the formation.

13:31 18 Q. Why is resistivity -- why would resistivity be important  
13:31 19 to understanding what you are looking at geologically?

13:31 20 A. In a subsurface, there's always water, so -- and it's  
13:31 21 brine, it's not freshwater, salty water -- and that water is  
13:31 22 quite conductive. So when the tools pass a zone that has  
13:31 23 water -- a lot of the water in it, then the resistivity reading  
13:31 24 will be very low. Low resistivity, high conductivity. When  
13:31 25 the tool passes a zone that has hydrocarbons in there, the

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1 hydrocarbons are not conductive, so they will have a high  
2 resistivity.

3 Q. How does that high resistivity -- how is that typically  
4 reflected in the trend line that's in this track?

5 A. It will be reflected as an excursion to the right of a  
6 generally wiggly but somewhat straight line.

7 Q. I want to pick up -- I want to see -- just encapsulate  
8 what you just said with respect to these two tracks. If you  
9 have a gamma ray that identifies a sand, you will have a  
10 left-hand excursion, correct?

11 A. Correct.

12 Q. If you have a sand that has hydrocarbon in it, you will  
13 have an excursion to the right. Fair?

14 A. That's correct in the context of this matter, yes.

15 Q. Do petrophysicists call that pattern anything in  
16 particular?

17 A. Well, one of the ways of looking at a log is a visual  
18 examination of the log, and you're taught early on in the  
19 business you are looking for something that we call  
20 "thumbs-out." So left gamma ray, right resistivity.

21 Q. Thank you.

22 The far right track, can you explain what this track  
23 measures?

24 A. It records measurements from two different tools. One is  
25 the density tool and it's in red; and the other is the neutron

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13:33 1 and it is in blue. Both of these instruments are a measurement  
13:33 2 of -- well, density measures density, but you convert that to  
13:33 3 porosity. Both of these tools are used to determine the  
13:33 4 porosity of the zone.

13:33 5 Q. Okay. Now, we are going to talk a little more about that,  
13:33 6 but we are going to go right to the depth track at 17,467,  
13:33 7 which has been identified as the depth of the M57B.

13:33 8 On the left, you have a gamma excursion to the left,  
13:33 9 correct, at M57B?

13:33 10 A. Yes.

13:33 11 Q. What do you have in the resistivity track?

13:33 12 A. You have an excursion to the right.

13:33 13 Q. That's this classic thumbs-out pattern that you've talked  
13:34 14 about, correct?

13:34 15 A. That's correct.

13:34 16 Q. All right. Let's talk about the density/neutron. You  
13:34 17 said that there were multiple readings being taken in that  
13:34 18 track, correct?

13:34 19 A. Correct.

13:34 20 Q. All right. I would like to talk about these two lines.  
13:34 21 Can you explain to the judge what the significance of the blue  
13:34 22 and the red lines are in the density/neutron track?

13:34 23 A. Well, if you will notice that -- looking above and below  
13:34 24 the M57B zone, the red and the blue lines are apart. These are  
13:34 25 shales there. So when you come in -- when the tools cross a

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13:34 1 sand instead of a shale, the -- and a sand that has porosity,  
13:34 2 then the density log will move from right to left and the  
13:34 3 neutron will move from left to right. So as the visual  
13:34 4 comparison, you look for when these two are coming together,  
13:34 5 touching, or crossing.

13:34 6 So the overall -- it's called quick look -- visual  
13:34 7 analysis is gamma ray left, resistivity right, density and  
13:35 8 neutron coming together, touching, or crossing.

13:35 9 Q. In your opinion, Dr. Strickland, here in M57B, does the  
13:35 10 triple combo log show the classic indications of a hydrocarbon  
13:35 11 sand?

13:35 12 A. Yes. We have a left excursion on the gamma ray, a right  
13:35 13 excursion on the resistivity, we have the density log moving  
13:35 14 from right to left, the neutron moving from left to right, and  
13:35 15 they touch and cross just a little bit.

13:35 16 Q. The density and the neutron cross right here. Do they  
13:35 17 intersect?

13:35 18 A. They intersect and cross over a little bit.

13:35 19 Q. Crossover. What does "crossover" mean?

13:35 20 A. Well, the tools -- it doesn't matter -- if the formation  
13:35 21 has porosity and let's just say the porosity was full of  
13:35 22 water -- not any hydrocarbons, just full of water -- then the  
13:35 23 density and neutron should come very close together, not always  
13:36 24 but it will be pretty close together. But then when they cross  
13:36 25 over a little bit, then -- if they cross over -- typically, you

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13:36 1 see crossover, you begin to think about hydrocarbons and you  
13:36 2 begin to think about what kind of hydrocarbon that is and is  
13:36 3 that oil or gas, and it's typically thought of as the first  
13:36 4 quick-look indicator that you might be seeing gas.

13:36 5 Q. As density and neutron plots cross in this track --

13:36 6 A. They do; not much, but they do.

13:36 7 Q. -- is it an indication to you that this is a  
13:36 8 hydrocarbon-bearing sand?

13:36 9 A. Well, first of all, it's an indicator that it has  
13:36 10 porosity; it has resistivity; it has gamma rays. So it's a  
13:36 11 sand, resistive -- something is in it that's resistive, and it  
13:36 12 has porosity that touch and cross over. Yeah, just as a first  
13:36 13 quick look, you say, "Yeah, that's certainly" -- you want to do  
13:36 14 calculations, but if you are just looking at it, you would say,  
13:37 15 "Yeah, that's one."

13:37 16 Q. So you understand -- let me ask you about the first time  
13:37 17 you were engaged in this case and its triple combo log was  
13:37 18 handed to you and you laid it out on the table. What were you  
13:37 19 asked to do?

13:37 20 A. Well, first of all, I was very interested in looking at  
13:37 21 the log just because I wanted to see the -- I had never seen it  
13:37 22 before.

13:37 23 Q. Did you actually look at the log?

13:37 24 A. Yes, I did.

13:37 25 Q. Explain to the Court what you were asked to do.

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13:37 1 A. Well, I walked into a room with a bunch of people at a  
13:37 2 long conference table and they handed me the -- this log,  
13:37 3 actually, the triple combo, and they said, "Can you identify  
13:37 4 the highest hydrocarbon zone in this open hole interval?"

13:37 5 Q. What did you identify it as?

13:37 6 A. Well, I laid the log out and, like most petrophysicists,  
13:37 7 you look at the bottom of the log first and work your way up  
13:37 8 the hole. So I looked at the bottom of the log and said, "Nice  
13:37 9 zone, nice zone, zone, zone, zone." I picked zones going up  
13:38 10 the well.

13:38 11 And I got to this zone and I said, "Yeah, this zone,"  
13:38 12 and then I looked at the zones above it and commented, Well, I  
13:38 13 don't know about the zones above it. I would have to do some  
13:38 14 calculations to see if -- what they might have in hydrocarbon  
13:38 15 saturation, but it's a good first-look examination that it's --  
13:38 16 looks like the tallest ones, I didn't know what it was called  
13:38 17 then, but this one at 17,467.

13:38 18 Q. Is that the highest one that you saw in the open hole --

13:38 19 A. It was.

13:38 20 Q. -- based on this pattern recognition process that you have  
13:38 21 just described you identified as a hydrocarbon-bearing sand?

13:38 22 A. It was.

13:38 23 Q. That was without having done any analysis -- any  
13:38 24 quantitative analysis on your own, correct?

13:38 25 A. That's correct.

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13:38 1 Q. Now, did you review internal BP documents and identify  
13:38 2 what they reflected about the M57B sand?

13:38 3 A. Yes.

13:38 4 Q. I would like to talk to you about some of those documents.

13:39 5 MR. HILL: If we could bring up Demonstrative 8025,  
13:39 6 please.

13:39 7 BY MR. HILL:

13:39 8 Q. Now, you have seen this demonstrative before?

13:39 9 A. I have.

13:39 10 Q. Have you reviewed it before?

13:39 11 A. I have.

13:39 12 Q. Do these documents that are identified on this  
13:39 13 demonstrative reflect documents that you reviewed in reaching  
13:39 14 your opinions in this case?

13:39 15 A. Yes.

13:39 16 MR. HILL: This top one right here, April 13, 2010,  
13:39 17 can we go to that? I'm going to start down here at the bottom.

13:39 18 BY MR. HILL:

13:39 19 Q. Dr. Strickland, this is an e-mail from Robert Bodek on  
13:39 20 April 13, 2010, to Galina Skripnikova. And it copies names of  
13:39 21 BP employees with whom the Court is familiar: Brian Ritchie,  
13:39 22 Charles Bondurant, Brian Morel, Greg Walz, Brett Cocalles, John  
13:39 23 Guide, Mark Hafle. And the subject is "top hydrocarbon-bearing  
13:39 24 zone."

13:40 25 Do you see that?

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13:40 1 A. I do.

13:40 2 Q. Can you please read the substance of that short e-mail to  
13:40 3 the Court.

13:40 4 A. It's from Mr. Bodek to Galina.

13:40 5 "The drilling team, in their cement procedure  
13:40 6 preparations, needs to know the depth of the shallowest  
13:40 7 hydrocarbon-bearing interval in the open hole. From your  
13:40 8 calculations, could you provide the depth of the shallowest  
13:40 9 hydrocarbon zone and 'reply all' to this e-mail."

13:40 10 Q. Now, you have read the entire chain, correct?

13:40 11 A. Yes.

13:40 12 Q. Did Ms. Galina reply?

13:40 13 A. She did.

13:40 14 Q. What did she identify as the shallow hydrocarbon-bearing  
13:40 15 sand on April 13, 2010?

13:40 16 A. She writes back and says: "I think the shallowest HC,"  
13:40 17 meaning hydrocarbon, "sand is at 17,803 md."

13:40 18 Q. Now, we had a chart up there before with the depths of the  
13:40 19 sands. But from memory, can you associate a sand name with the  
13:41 20 sand that she's identified from the depth in the e-mail?

13:41 21 A. Yes.

13:41 22 Q. What is it?

13:41 23 A. The M56A sand.

13:41 24 Q. At the top, Mr. Bodek responds back the same day and says:  
13:41 25 "I can buy that. That the shallowest sand that we see



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13:41 1 legitimate DEN/NEU crossover on the triple combo log."

13:41 2 Did I read that correctly?

13:41 3 A. You did.

13:41 4 Q. What does that tell you about what was being used to  
13:41 5 determine what the shallowest hydrocarbon-bearing sand was by  
13:41 6 BP on April 13?

13:41 7 A. It references the triple combo log, which contains -- the  
13:41 8 DEN/NEU is the density/neutron, and crossover is the response  
13:41 9 of those curves.

13:41 10 Now, it looks like they are looking at the triple  
13:41 11 combo log and looking at density/neutron crossover.

13:41 12 MR. HILL: Let's go back to the cover, please.

13:47 13 BY MR. HILL:

13:47 14 Q. Now, this demonstrative identifies the blowout as having  
13:41 15 occurred on April 20, for purposes of timing.

13:42 16 Let's look at another document two days after the  
13:42 17 blowout, dated April 22.

13:42 18 This is an e-mail from Mr. Albertin to a group of BP  
13:42 19 geologists and petrophysicists, and copies Galina Skripnikova  
13:42 20 as well.

13:42 21 Can you explain to the Court what you read and what  
13:42 22 you understand this document to be.

13:42 23 A. This is right after the blowout. And I understood this  
13:42 24 document -- a team was put together, and one of the things that  
13:42 25 they did was compile all the sands that were found in the

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13 : 42 1 drilling of the well, list their depths, and also include the  
13 : 42 2 fluid content of the sand.

13 : 42 3 Q. So when you reviewed this, were there attachments  
13 : 42 4 associated with this e-mail identifying all the sands?

13 : 42 5 A. Yes.

13 : 42 6 Q. Can you identify for the Court what BP, two days after the  
13 : 42 7 blowout, identified as being at the depth of 17,467 feet?

13 : 42 8 A. Yes. They identified the sand as a sand that contained  
13 : 43 9 gas. The interpreted fluid type was gas, and that also had  
13 : 43 10 some estimated pressures of the sand.

13 : 43 11 Q. Based on that depth of 17,467 feet, can you identify what  
13 : 43 12 sand that came to be called?

13 : 43 13 A. Yes. That's the M57B.

13 : 43 14 Q. Now, lest the Court think that this was new information  
13 : 43 15 brought to bear for this analysis, did you review any documents  
13 : 43 16 that showed that the logs that were available to this team were  
13 : 43 17 the same logs that were available to BP prior to April 20,  
13 : 43 18 2010?

13 : 43 19 A. Yes.

13 : 43 20 **MR. HILL:** Can you bring up TRES-3549, please.

13 : 43 21 Let's blow this up.

13 : 47 22 **BY MR. HILL:**

13 : 47 23 Q. This e-mail from Mr. Bodek, who had the conversation with  
13 : 43 24 Ms. Galina on April 13 in the e-mail we looked at, he writes to  
13 : 43 25 the Macondo partners.

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1 "Please be advised that all evaluation is now  
2 complete on the Macondo well."

3 Let's start right here.

4 "Other data, including MWD/LWD logs, mud logs, and  
5 wireline logs have been posted in WellSpace."

6 And he specifically identifies the logs that have  
7 been posted to the partners in WellSpace as being the triple  
8 combo, the CMR, ECS, OBMI, MDT, VSP, and CSS, correct?

9 A. Yes.

10 **MR. HILL:** Back to the cover, please, Slide 1.

11 Let's go to this document dated May 20 and 22.

12 **BY MR. HILL:**

13 Q. Can you explain to the Court what -- the document  
14 reflected in this demonstrative -- what it is.

15 A. Yes. This document is a -- it's a technical note, it's  
16 called. And a team has been asked -- certainly BP is very,  
17 very interested in getting this well shut in. But when you  
18 shut it in, they also need to know what will be the highest  
19 pressure that they might be seeing at the surface.

20 Q. All right. So where it says, "Key Conclusions: The SIWHP  
21 is expected to be between about 7500 psia and 11,350 psia,"  
22 what is your understanding of what "SIWHP" stands for?

23 A. It stands for "shut-in wellhead pressure."

24 Q. All right. So in attempting to understand what the  
25 shut-in wellhead pressure would be during the blowout, can you

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13:45 1 read to the Court what would be put in here for purposes of  
13:45 2 their consideration?

13:45 3 A. The shut-in wellhead pressure, if you cap it, would be --  
13:45 4 it says: "The range considers the impact of shallower  
13:45 5 high-pressure gas zones, which are found at depths between  
13:45 6 17,467 - 17,806 feet MD-RKB."

13:46 7 Q. With respect to the shallower high-pressure gas zones  
13:46 8 identified in this BP e-mail, as of May 20, 2010, does it  
13:46 9 identify the specific sand that's at the depth of 17,467?

13:46 10 A. Yes. Those depths are -- the M57B is at 17,467, and the  
13:46 11 M56A is at 17,803, 4, 6, just depending on what log you are  
13:46 12 reading.

13:46 13 There was a consensus that these gas sands [verbatim]  
13:46 14 were likely to be open.

13:46 15 Q. Now, that's an interesting note you make there.

13:46 16 What does it mean to you, as a petrophysicist, this  
13:46 17 comment that these gas zones are likely to be open?

13:46 18 MR. REGAN: I would object. If we could read the  
13:46 19 whole sentence for completeness.

13:46 20 MR. HILL: He can do that on cross.

13:46 21 THE COURT: Which sentence?

13:46 22 MR. REGAN: The one that's been half highlighted.

13:46 23 THE COURT: Can you read that whole sentence?

13:46 24 THE WITNESS: Certainly, yes. The consensus --  
13:46 25 "There was consensus that these gas sands [verbatim] were

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13:47 1 likely to be open" --

13:47 2 THE COURT: Gas zones, huh?

13:47 3 THE WITNESS: Excuse me. Thank you, sir.

13:47 4 ". . . gas zones were likely to be open, but the  
13:47 5 contribution and depletion of these zones was an area of  
13:47 6 uncertainty."

13:47 7 BY MR. HILL:

13:47 8 Q. Now, Dr. Strickland, to the extent this document reflects  
13:47 9 a consensus that these zones are likely to be open, what does  
13:47 10 that mean to you as a petrophysicist?

13:47 11 A. "Be open" means -- I think means to be open to flow. You  
13:47 12 have to have a pressure differential. So -- and these zones  
13:47 13 have high pressure which is held back by the well -- the  
13:47 14 pressure of the wellbore. And if that pressure in the wellbore  
13:47 15 was lowered below the pressures in the zones, then the  
13:47 16 consensus is that they will flow in response to that pressure  
13:47 17 drop.

13:47 18 Q. If a sand flows, what does that mean with respect to its  
13:47 19 permeability?

13:47 20 A. Well, it means it has permeability.

13:48 21 Q. Which means?

13:48 22 THE COURT: Mr. Hill, let me just ask -- clarify for  
13:48 23 me this document. What is this document?

13:48 24 MR. HILL: Your Honor, this is --

13:48 25 THE COURT: It's dated after the casualty, correct?

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13 : 48 1 THE WITNESS: Correct.

13 : 48 2 MR. HILL: That's correct, Your Honor.

13 : 48 3 THE COURT: So what is this?

13 : 48 4 MR. HILL: It is a technical memorandum from inside

13 : 48 5 BP in an attempt to understand how the well was flowing during

13 : 48 6 the blowout.

13 : 48 7 THE COURT: Okay.

13 : 48 8 MR. HILL: And in order to do that, they had to

13 : 48 9 identify potential sands that could have flowed.

13 : 48 10 THE COURT: Okay.

13 : 48 11 MR. HILL: For Your Honor's benefit, at the bottom

13 : 48 12 there is a TREX number for the specific document that's

13 : 48 13 graphically represented.

13 : 48 14 THE COURT: All right.

13 : 48 15 MR. HILL: Let me go back to Slide 1, please.

13 : 47 16 BY MR. HILL:

13 : 47 17 Q. I want to talk about this document dated May 25. This is

13 : 48 18 a technical memorandum, not to be confused with a technical

13 : 48 19 note, correct?

13 : 48 20 A. Yes.

13 : 48 21 Q. It is a draft dated May 25, 2010. Have you reviewed this

13 : 48 22 document before?

13 : 48 23 A. I have.

13 : 48 24 Q. What is your -- what was it, when you read it?

13 : 48 25 A. This is a document that tries to bring together all of the

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13:49 1 information that has -- that they found out about all the zones  
13:49 2 in the well.

13:49 3 Q. In that document where they were looking at and describing  
13:49 4 the description of all the zones found in the well, did they  
13:49 5 identify M57B?

13:49 6 A. Yes, in several places.

13:49 7 Q. How did they identify it?

13:49 8 A. This was the first one. They have this graphic that lists  
13:49 9 a bunch of the zones, and the M57B was identified as a gas  
13:49 10 zone.

13:49 11 MR. HILL: Moving on to the next slide, please.

13:47 12 BY MR. HILL:

13:47 13 Q. In the same document, and on page 27 of it, there is a  
13:49 14 portion that says: "Three further sands have been identified  
13:49 15 in the TD" -- what do you understand TD to mean?

13:49 16 A. Total depth.

13:49 17 Q. ". . . in the total depth hole section, which have a gas  
13:49 18 signature on the" density neutron -- or the "neutron/density  
13:49 19 logs, namely, M57B, M56A, and M56F."

13:49 20 What does that tell you, or how do you interpret  
13:49 21 that, Dr. Strickland, with respect to how whoever wrote this  
13:50 22 was reading the density/neutron on the log?

13:50 23 MR. REGAN: That's speculation, Your Honor.

13:50 24 MR. HILL: Your Honor, I'm asking for his  
13:50 25 interpretation.

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13:50 1 THE COURT: Overruled.

13:50 2 THE WITNESS: Whoever wrote this then, I think, was  
13:50 3 looking at the density/neutron, the triple combo log, and they  
13:50 4 looked and saw crossover. And they saw crossover in these  
13:50 5 sands, the 57B, the 56A, and the 56F.

13:50 6 BY MR. HILL:

13:50 7 Q. They specifically identified it as having a gas signature,  
13:50 8 correct?

13:50 9 A. Yes. So they are equating neutron/density crossover with  
13:50 10 gas.

13:50 11 Q. By the way -- and we didn't talk about this before. But  
13:50 12 those density/neutron plots, even if they don't cross over, but  
13:50 13 are just approaching each other, is that also an indication of  
13:50 14 hydrocarbon?

13:50 15 A. It's an indication of porosity, first of all.

13:50 16 Q. Right.

13:50 17 A. You need to look -- with that porosity, you also need to  
13:50 18 look to the resistivity in the gamma ray to try to understand  
13:50 19 what is there in lithology, porosity, and fluid content.

13:51 20 Q. To the extent that they approach each other and actually  
13:51 21 touch, intersect, cross over a little or a lot, what -- what  
13:51 22 extra information does that give you?

13:51 23 A. Well, to the extent that -- it's not an absolute. But to  
13:51 24 the extent that they cross over, it is an indicator of gas, but  
13:51 25 it's not an absolute thing.



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13:51 1 Q. Right. But you've done quantitative analysis to determine  
13:51 2 the content of gas that we will get to later. But just from  
13:51 3 this, quick-look perspective?

13:51 4 A. Yes.

13:51 5 MR. HILL: Let's go to the next slide, please. Next  
13:51 6 slide, Slide 8.

13:51 7 I'm sorry, you're right. Slide 7. Ignore me.

13:47 8 BY MR. HILL:

13:47 9 Q. All right. In the same document, this type of draft  
13:51 10 technical memorandum on page 30, again, they identify the M57B  
13:51 11 sand as being a sand of approximately how -- over what  
13:51 12 thickness?

13:51 13 A. It's approximately 2 feet thick.

13:51 14 Q. On this page, what do they identify it as?

13:52 15 A. They identified it as -- that the fluid content is likely  
13:52 16 to be gas.

13:52 17 MR. HILL: Finally, next slide.

13:47 18 BY MR. HILL:

13:47 19 Q. At the end of this technical memorandum, there is this  
13:52 20 chart. Have you seen this chart replicated in multiple BP  
13:52 21 internal documents?

13:52 22 A. Yes.

13:52 23 Q. Let's just talk about the one in this draft. This says  
13:52 24 "Net/Pay Summary," and it identifies a variety of sands. But  
13:52 25 let's look at what they say with respect to the specific M57B

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13 : 52 1 sand.

13 : 52 2 At 17467, they call it a gas sand, correct?

13 : 52 3 A. The fluid content is listed as gas.

13 : 52 4 Q. I would like to talk to you about these measurements right  
13 : 52 5 here.

13 : 52 6 Does this document identify a porosity value that BP  
13 : 52 7 calculated for the M57B sand?

13 : 52 8 A. It does.

13 : 52 9 Q. What is it?

13 : 52 10 A. The porosity is 18 percent.

13 : 52 11 Q. Do they calculate a permeability value?

13 : 52 12 A. Yes. They have calculated the permeability value. It  
13 : 52 13 ranges, depending on how you average, between 8 to  
13 : 53 14 15 millidarcys.

13 : 53 15 Q. In your opinion, Dr. Strickland, is that a sufficient  
13 : 53 16 permeability value to allow this sand to flow in the face of a  
13 : 53 17 pressure differential?

13 : 53 18 A. Yes.

13 : 53 19 Q. Now, the other thing I want to talk to you about, they  
13 : 53 20 also calculate a water saturation value, correct?

13 : 53 21 A. Correct.

13 : 53 22 Q. What is that value?

13 : 53 23 A. 52 percent.

13 : 53 24 Q. So based on the calculations you were describing earlier  
13 : 53 25 about water saturation, if you have a water saturation value of

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1 52 percent, what has BP calculated the hydrocarbon content to  
2 be in this document?

3 A. It has to be 100 minus 52, which would be 48 percent.

4 Q. Thank you.

5 MR. HILL: Let's go back to the cover, please.

6 BY MR. HILL:

7 Q. I would like to move now to this time period of June 25.  
8 All right? This is an e-mail.

9 But before we do that, I want to ask you: Do you  
10 know who Kent Corser is?

11 A. Yes. He works for BP.

12 Q. Okay. Do you understand that Kent Corser was involved as  
13 one of the principals leading the Bly investigation at BP?

14 A. I do.

15 Q. Do you know who Haug Emilsen is?

16 A. Yes.

17 Q. Who is that?

18 A. He's an outside contractor. He also worked as part of the  
19 Bly investigative team, and he's a specialist in wellbore  
20 modeling.

21 Q. So he did some of the hydraulic modeling that was  
22 referenced in the Bly report, right?

23 A. That's correct.

24 MR. HILL: Rather than go to this slide, I would like  
25 to bring up the actual e-mail, if we could. It's at TREN-7279.

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13:54 1 Let's go to the second page and read up.

13:56 2 **BY MR. HILL:**

13:56 3 **Q.** By the way, have you seen this e-mail chain between  
13:54 4 Mr. Corser and Mr. Emilsen?

13:54 5 **A.** Yes.

13:54 6 **MR. HILL:** Let's bring this up right here, please.

13:56 7 **BY MR. HILL:**

13:56 8 **Q.** On June 25, 2010, Mr. Corser e-mails Morten Emilsen and  
13:55 9 says: "We need some help with an update on the dynamic model.  
13:55 10 Are you available now or is there someone else who could run  
13:55 11 the model? We have a sand at 17,467" measured depth --  
13:55 12 sorry -- "MD, that is 2 feet thick, 14.1 ppg . . ."

13:55 13 And how was it classified, Dr. Strickland?

13:55 14 **A.** Classified as gas and would flow.

13:55 15 **Q.** "Want to see how that fits to at least start the kick."

13:55 16 **MR. HILL:** If we could come back out of that and go  
13:55 17 to the top e-mail.

13:55 18 Actually, before you go there, there is a  
13:55 19 discussion that takes place wondering about this --

13:56 20 **BY MR. HILL:**

13:56 21 **Q.** Actually, what is the discussion that takes place between  
13:55 22 these two, just generally?

13:55 23 **A.** The issue is that the Bly investigative team has found the  
13:55 24 sand, and Morten Emilsen is the fellow who does the dynamic  
13:55 25 model, the hydraulic wellbore model, and they are trying to

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13:56 1 find someone to run it to see what the effect of adding the  
13:56 2 sand would be to that simulation.

13:56 3 **MR. HILL:** Let's call this out at top.

13:56 4 **BY MR. HILL:**

13:56 5 **Q.** Mr. Corser's final response in this e-mail chain is, "This  
13:56 6 sand" -- why don't you read it to the Court, please.

13:56 7 **A.** "This sand is new. They did a new study and have  
13:56 8 classified it a gas-bearing and capable of flow. See attached  
13:56 9 chart. This is not the brine sand."

13:56 10 **Q.** So how many brine sands were identified in the open hole?

13:56 11 **A.** There's one, typically, identified there.

13:56 12 **Q.** What's it called?

13:56 13 **A.** The M57C.

13:56 14 **Q.** So we know Mr. Corser isn't talking about the brine sand,  
13:56 15 right?

13:56 16 **A.** Correct.

13:56 17 **MR. HILL:** Take that back down. Let's go back to  
13:56 18 Demonstrative 8025, Slide 9.

13:56 19 **BY MR. HILL:**

13:56 20 **Q.** I will represent to you, Dr. Strickland, that the  
13:56 21 attachment referenced in that e-mail has been blown up here on  
13:56 22 this graphic.

13:56 23 Can you tell the Court what it identifies M57B as  
13:56 24 being, what type of fluid content?

13:56 25 **A.** As gas.

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13:57 1 Q. With respect to the question if it's expected to flow,  
13:57 2 what does it say?

13:57 3 A. It says yes.

13:57 4 Q. Do you recognize these porosity values as being similar to  
13:57 5 the ones that we saw on the chart in the technical memorandum?

13:57 6 A. I think the others were just expressed to two significant  
13:57 7 digits. These are 17.95. The other document expressed it as  
13:57 8 18.

13:57 9 Q. Which is a fair rounding, correct?

13:57 10 A. Yeah.

13:57 11 Q. Can you identify in this document whether BP has actually  
13:57 12 calculated a pore pressure associated with the M57B sand?

13:57 13 A. Yes. They've calculated that the sand exists at  
13:57 14 12,847 psia.

13:57 15 Q. If that is converted to a pounds per gallon, what is it?

13:57 16 A. 14.2 pounds per gallon.

13:57 17 MR. HILL: Back to the cover, please.

13:56 18 BY MR. HILL:

13:56 19 Q. I would like to go to that July 26 one right up there.  
13:58 20 And we're not going to go through all of these, but I want to  
13:58 21 get to this one.

13:58 22 This one is a technical memorandum dated July 26,  
13:58 23 2010, correct?

13:58 24 A. Yes.

13:58 25 Q. Are you familiar with this document?

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13:58 1 A. I am.

13:58 2 Q. Have you spent an extensive amount of time reviewing it?

13:58 3 A. This one and the ones before it.

13:58 4 Q. Did you actually use this document to take data for  
13:58 5 purposes of your own calculations?

13:58 6 A. Yes. The one I looked at was actually the first draft of  
13:58 7 this.

13:58 8 Q. You understand this to be the latest draft of that  
13:58 9 technical memorandum, correct?

13:58 10 A. Yes, I do.

13:58 11 Q. It's the latest one you reviewed, right?

13:58 12 A. That's correct.

13:58 13 Q. How does BP, on July 26, 2010, after spending the end of  
13:58 14 April, May, June, and most of July identifying M57B as a gas  
13:58 15 sand, how do they identify it in this technical -- final draft  
13:58 16 of the technical memorandum?

13:58 17 A. They have now identified it as a "probable gas."

13:58 18 MR. HILL: Can you go to Slide 14, please.

13:56 19 BY MR. HILL:

13:56 20 Q. Regardless of how it's classified in the body of the  
13:59 21 technical memorandum, they insert this net/pay summary chart  
13:59 22 again, correct?

13:59 23 A. Correct.

13:59 24 Q. As you review the data associated with M57B sand,  
13:59 25 regardless of its new classification as a "probable gas," have

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13:59 1 any of the calculated values of porosity, saturation of water,  
13:59 2 or permeability changed?

13:59 3 A. None have.

13:59 4 MR. HILL: Let's go to Slide 15, please.

13:56 5 BY MR. HILL:

13:56 6 Q. Have you reviewed the Bly report?

13:59 7 A. I have.

13:59 8 Q. Do you know when BP published the Bly report to the world?

13:59 9 A. September or October -- September 8, I think.

13:59 10 Q. I don't want to make you guess. It's on the cover.

13:59 11 A. It's September 8, 2010.

13:59 12 Q. It's right there, September 8, 2010. Okay?

13:59 13 Are you familiar with the wellbore graphic that  
13:59 14 depicts the sands on page 54 of the Bly report?

14:00 15 A. I am.

14:00 16 Q. Is the M57B sand identified?

14:00 17 A. It is not.

14:00 18 Q. At the very, very bottom, in very small print, which we  
14:00 19 have blown up for you, can you tell the Court what the  
14:00 20 disclaimer at the bottom of that graphic says?

14:00 21 A. It says: "Note: Sands are based on geology known at the  
14:00 22 time of the accident."

14:00 23 Q. Now, all of the documents that we have just reviewed were  
14:00 24 post-incident documents identifying and characterizing M57B  
14:00 25 sand post-incident, correct?



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- 14:00 1 A. That's right.
- 14:00 2 Q. And those were documents that predated the publishing of  
14:00 3 the Bly report, correct?
- 14:00 4 A. That's correct.
- 14:00 5 Q. Let's move away from your review of the internal BP  
14:00 6 documents and talk about your own analysis. Did you conduct  
14:00 7 your own quantitative analysis of the M57B sand?
- 14:00 8 A. I did.
- 14:00 9 Q. Did you conduct your own water saturation calculations?
- 14:00 10 A. I did.
- 14:00 11 Q. Are those reflected on page 35, paragraph 102, of your  
14:01 12 report?
- 14:01 13 A. I believe that's correct, yes.
- 14:01 14 Q. Can you explain to the Court what you did.
- 14:01 15 A. Yes. I used the information, some of which we have looked  
14:01 16 at here. I calculated water saturation for the sands in the  
14:01 17 open hole, and I used four different equations to calculate  
14:01 18 those.
- 14:01 19 Q. Let me stop you there so we can break that down a little  
14:01 20 bit. Of the four equations, what was the first equation you  
14:01 21 used?
- 14:01 22 A. Archie.
- 14:01 23 Q. Is Archie like -- is it an obscure equation for a  
14:01 24 petrophysicist?
- 14:01 25 A. No.

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14:01 1 Q. Is it a common equation?

14:01 2 A. Yes, it is.

14:01 3 Q. Does every petrophysicist know -- well, you can't testify,  
14:01 4 but should a petrophysicist know the Archie equation?

14:01 5 A. Yes, they should.

14:01 6 Q. In your opinion, Dr. Strickland, why -- in what situations  
14:01 7 is the Archie equation most appropriate for use in calculating  
14:01 8 the water saturation value?

14:01 9 A. The Archie equation, which -- a guy named Archie, 1942, I  
14:02 10 believe, proposed this equation. And it is -- the Archie  
14:02 11 equation is good for calculating water saturation in what we  
14:02 12 call a "clean" sand, and that's a sand that doesn't have much  
14:02 13 shale in it.

14:02 14 Q. What happens if you have a sand that has some shale in it?

14:02 15 A. Well, if you have a sand that has shale, Archie will  
14:02 16 predict a higher water saturation and, consequently, a lower  
14:02 17 hydrocarbon saturation.

14:02 18 Q. So are there equations that you can use that actually  
14:02 19 compensate for the presence of shale in the sand in order to  
14:02 20 get a more accurate water saturation value?

14:02 21 A. There are a lot of them. I used three particular ones.

14:02 22 Q. You want to name them?

14:02 23 A. Sure. I used the Simandoux, spelled S-I-M-A-N-D-O-U-X.

14:02 24 Q. Okay.

14:02 25 A. Another one called Modified Simandoux and a third one

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14:03 1 called Indonesian.

14:03 2 Q. Let me ask you this: M57B, is it a clean sand or is it a  
14:03 3 shaly sand?

14:03 4 A. It is a shalier sand, yes; it is not as clean as the other  
14:03 5 sands.

14:03 6 MR. REGAN: I'm sorry to interrupt your answer.

14:03 7 I object to the witness -- I don't think he has  
14:03 8 any physical evidence to base that opinion on. There may be a  
14:03 9 way to lay the foundation for it.

14:03 10 MR. HILL: I can lay the foundation.

14:03 11 BY MR. HILL:

14:03 12 Q. Did you review logs -- did you review the laminated sands  
14:03 13 analysis?

14:03 14 A. Yes.

14:03 15 Q. Does that identify what is sandy versus what is shaly --  
14:03 16 versus what is shaly sand?

14:03 17 A. It's Schlumberger's calculation of it. I did my own.

14:03 18 Q. Based on your analysis of logs, what is your opinion as to  
14:03 19 the -- what type of sand we are talking about with the M57B  
14:03 20 sand?

14:03 21 A. I calculated the M57B sand had -- I think it was  
14:03 22 33 percent shale, or called clay when you are doing the  
14:04 23 calculations. But -- so that was a shaly sand.

14:04 24 Q. So, in your opinion, it's a shaly sand?

14:04 25 A. Yeah.

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14:04 1 Q. Now, when you do these calculations, are there specific  
14:04 2 inputs that go into the equations?

14:04 3 A. There are.

14:04 4 Q. Can you briefly -- we want to do this briefly -- explain  
14:04 5 what those inputs are.

14:04 6 A. Well, there are several inputs. A lot of them refer to  
14:04 7 the structure of the rock and the nature of the porosity. Some  
14:04 8 of the inputs refer to the fluid in the rock, the resistivity  
14:04 9 of the rock. So there's a number just -- that go into just  
14:04 10 Archie's equation.

14:04 11 Q. Where did you obtain those inputs, those constants that  
14:04 12 you used in the equations that you used?

14:04 13 A. Yes. In the technical memorandum that we were looking at,  
14:04 14 the July 26 technical memorandum, those values that BP chose to  
14:04 15 evaluate the well logs with were listed, and they were listed  
14:05 16 in all the technical memorandums, the previous drafts of that  
14:05 17 one. They never changed. So I called those the  
14:05 18 "BP parameters." And so I used those parameters as one set of  
14:05 19 parameters to do my calculations with.

14:05 20 Q. Did you use any other sets?

14:05 21 A. Yes. Schlumberger also did calculations of water  
14:05 22 saturation, and they have a calculated log called the  
14:05 23 "laminated sand analysis log." On that log they list the  
14:05 24 parameters that they used. It was a slightly different set;  
14:05 25 some of the values were the same, but slightly different. So I

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14:05 1 picked up the Schlumberger parameters and used them also.

14:05 2 Q. Now, have you prepared some demonstratives today to assist  
14:05 3 the Court in understanding your water saturation calculations?

14:05 4 A. Yes, I have.

14:05 5 Q. We are going to put those up there, but while we do this,  
14:05 6 let's close this loop. I don't think I asked you before.

14:05 7 Who actually ran the logs for BP on the Macondo well,  
14:05 8 the wireline logs?

14:05 9 A. Schlumberger.

14:06 10 Q. So when you say you were looking at Schlumberger analysis,  
14:06 11 this was done pursuant to the wireline logging services,  
14:06 12 correct?

14:06 13 A. Yes.

14:06 14 MR. HILL: Could we bring up Demonstrative 8244,  
14:06 15 please.

14:06 16 BY MR. HILL:

14:06 17 Q. Here is Demonstrative 8244, and it says up here "using BP  
14:06 18 parameters." Would you please explain to the Court what we are  
14:06 19 seeing.

14:06 20 A. Yes. This is a plot that I prepared. The left-hand track  
14:06 21 contains the gamma ray curve that's -- I think it's in green on  
14:06 22 my plot -- showing the excursion to the left. Then the other  
14:06 23 two tracks on the right are both water saturation curves, or  
14:06 24 tracks, where I display my calculated results.

14:06 25 Q. Okay.

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14:06 1 A. And the first track is the Archie calculation for water  
14:06 2 saturation, and the little call-out box points to the  
14:07 3 calculated value, the minimum water saturation of 40 percent.

14:07 4 Q. That's using the Archie equation that you said was most  
14:07 5 appropriate for clean sands, correct?

14:07 6 A. Clean sands, right.

14:07 7 Q. What is this? What do we see here? What are these values  
14:07 8 in the right-hand track?

14:07 9 A. On the right-hand side, the right track shows calculation  
14:07 10 for the three other methods: Simandoux, Modified Simandoux,  
14:07 11 and Indonesian. Each of those have additional terms to account  
14:07 12 for the effect of shale in the sand.

14:07 13 So I have shown those three calculations, and that  
14:07 14 effect is to reduce the calculated water saturation.

14:07 15 Q. All right. With respect to these shaly sand appropriate  
14:07 16 equations, when you calculated the water saturation of the M57B  
14:07 17 sand, what was the range of values that you got for saturation  
14:07 18 of the water?

14:07 19 A. Using the BP parameters, from 29 percent water to  
14:07 20 36 percent water.

14:07 21 Q. So if you were to identify what the corollary to that is,  
14:08 22 the hydrocarbon content, what do these equations calculate the  
14:08 23 hydrocarbon content of M57B to be?

14:08 24 A. A maximum of 71 to a -- to 64.

14:08 25 Q. Between 64 and 71 percent hydrocarbon?

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14:08 1 A. Percent hydrocarbon.

14:08 2 Q. Thank you.

14:08 3 MR. HILL: Let's go to D-8245.

14:08 4 BY MR. HILL:

14:08 5 Q. Again, similar setup as the prior chart, the difference  
14:08 6 being that here you used the Schlumberger parameters, correct?

14:08 7 A. Yes. I showed the same Archie saturation calculation on  
14:08 8 the left just for comparison.

14:08 9 Q. And again, the right-hand track depicts the range using  
14:08 10 the three shaly sand appropriate equations of what your  
14:08 11 saturation of water calculations are using Schlumberger's  
14:08 12 parameters, correct?

14:08 13 A. That's correct.

14:09 14 Q. Again, if you were to take each of these values and  
14:09 15 subtract it from 100, that would give you the hydrocarbon  
14:09 16 content according to those equations, correct?

14:09 17 A. That's correct.

14:09 18 Q. Now, having done these calculations, what is your opinion,  
14:09 19 Dr. Strickland, as to the hydrocarbon content of the M57B sand?

14:09 20 A. The hydrocarbon content varies anywhere from -- it might  
14:09 21 be 50 percent to 70 percent.

14:09 22 Q. Why do you give a range?

14:09 23 A. Because there is differences of opinion of which method  
14:09 24 you should use, which parameters you should choose; and it  
14:09 25 moves that saturation around, as I've demonstrated there.

## RICHARD STRICKLAND - DIRECT

14:09 1 Q. What is the only way to be a hundred percent sure as to  
14:09 2 what the hydrocarbon content is in the M57B sand?

14:09 3 A. Well, I don't know if there's any way to know to a hundred  
14:09 4 percent certainty.

14:09 5 Q. Can you take a physical sample?

14:10 6 A. You can take a physical sample.

14:10 7 Q. Was that done in this case?

14:10 8 A. No.

14:10 9 Q. Absent physical evidence to actually -- to tangibly  
14:10 10 analyze, is this the only way that you can actually understand  
14:10 11 the hydrocarbon content concentration of the M57B through  
14:10 12 petrophysical analysis?

14:10 13 A. Well, it's a good way. I might dream up some others. But  
14:10 14 even if you had a sample, you get a sample of the rock, you can  
14:10 15 more accurately determine some of the parameters that go into  
14:10 16 the equations.

14:10 17 Q. Okay. Based on the information and data available to you,  
14:10 18 could you have tried to determine it in any more accurate way  
14:10 19 other than what you did through this quantitative analysis?

14:10 20 A. I don't think so, no.

14:10 21 Q. Now, are you familiar with BP's argument that that -- we  
14:10 22 were talking about the thumbs-out pattern recognition. That  
14:10 23 middle track, the resistivity track that does the right-hand  
14:10 24 excursion, that's the resistivity value, correct?

14:11 25 A. That's correct.



## RICHARD STRICKLAND - DIRECT

14:11 1 Q. What is the resistivity value that really matters for  
14:11 2 purposes of determining what water saturation is?

14:11 3 A. It's a direct input into the water saturation  
14:11 4 calculations.

14:11 5 Q. What is that?

14:11 6 A. Well, the symbol for it is capital R sub t.

14:11 7 Q. What does that mean?

14:11 8 A. The moniker you hang on that is true resistivity.

14:11 9 Q. Now, are you familiar with BP's argument that the true  
14:11 10 resistivity values that are identified or measured in the  
14:11 11 triple combo log have been influenced by the presence of  
14:11 12 invaded synthetic oil-based mud?

14:11 13 A. Yes.

14:11 14 Q. Can you explain to the Court your understanding of that  
14:11 15 argument.

14:11 16 A. Yes. As this formation is exposed to the drilling fluid  
14:11 17 that's in the hole -- the well was drilled through this  
14:11 18 interval about April 4. It was logged about April 11, I think,  
14:12 19 seven days later. So over that seven-day period, this sand was  
14:12 20 exposed to the wellbore -- the fluids in the wellbore.

14:12 21 Those fluids -- it's an oil-based mud, so it has  
14:12 22 solid particles in it and it has -- the liquid content is a  
14:12 23 mixture of oil and water, about 70 percent oil, 30 percent  
14:12 24 water. And so that is called the "mud filtrate."

14:12 25 So separating the solid particles from the liquid,

## RICHARD STRICKLAND - DIRECT

14:12 1 the liquid called mud filtrate, that mud filtrate has the  
14:12 2 opportunity to move into formations if the pressure in the  
14:12 3 wellbore exceeds the pressure in the formations. It's called  
14:12 4 "overbalanced" then.

14:12 5 **MR. HILL:** Can you bring up TRES-3540 and go to M57B,  
14:12 6 please.

14:12 7 **BY MR. HILL:**

14:12 8 **Q.** Now, I want to talk to you about whether or not you agree  
14:12 9 with that. But before I ask that question, I want to make sure  
14:12 10 the Court understands what the different resistivity curves are  
14:12 11 in this track and what their zone of investigation is.

14:13 12 **A.** It might help if you look at the header first.

14:13 13 **Q.** We can go to the header.

14:13 14 **MR. HILL:** Pull that up. Thanks, Rob.

14:13 15 **BY MR. HILL:**

14:13 16 **Q.** Now, right here we've got an AIT 10, AIT 20, AIT 30,  
14:13 17 AIT 60, and AIT 90 tool. Do you see that?

14:13 18 **A.** I do.

14:13 19 **Q.** Can you explain to the Court what the difference of those  
14:13 20 different AIT tools are.

14:13 21 **A.** Yes. The numbers 10, 20, 30, 60, and 90 refer to how far  
14:13 22 out in inches this log is looking in order to get the  
14:13 23 resistivity information.

14:13 24 **Q.** All right.

14:13 25 **A.** So the AT 10 curve, the thing in parentheses out there --

## RICHARD STRICKLAND - DIRECT

14:13 1 the AT 10 curve is looking out 10 inches, and the AT 90 is  
14:14 2 looking out 90 inches.

14:14 3 Q. Did you have occasion to review logs to determine what the  
14:14 4 depth of invasion was at the time that the triple combo tool  
14:14 5 measured the M57B sand?

14:14 6 A. Yes. Actually, this is many, many recordings of  
14:14 7 measurements and calculations done as part of the Schlumberger  
14:14 8 logging package. One of those is a radius of investigation.

14:14 9 Q. What was that radius? What was that depth of invasion  
14:14 10 that you looked at?

14:14 11 A. For this zone I think it was like 30 inches.

14:14 12 Q. Okay. So if you have depth of invasion for 30 inches,  
14:14 13 that means mud is into the M57B sand for -- is it radius or  
14:14 14 diameter?

14:14 15 A. Radius.

14:14 16 Q. -- for a radius of 30 inches, will any of these tools look  
14:14 17 beyond the zone of invasion and measure the resistivity of the  
14:14 18 fluid behind it?

14:14 19 A. Yes. The 60 and the 90 will look beyond that. It is  
14:15 20 influenced by it, but it does look beyond that.

14:15 21 Q. That's my next question. Do you think that these  
14:15 22 resistivity measurements are influenced?

14:15 23 A. Yes. They are influenced some, yes.

14:15 24 Q. In your review did you identify any resistivity  
14:15 25 measurement that was not so influenced by invaded mud?

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14:15 1 A. Yes.

14:15 2 Q. Can you tell the Court what that was or where you saw  
14:15 3 that.

14:15 4 A. On a log run by Sperry-Sun while the drilling process was  
14:15 5 going on -- it's called the LWD log.

14:15 6 MR. HILL: Bring up 7852, please.

14:15 7 THE COURT: Mr. Hill.

14:15 8 MR. HILL: Yes.

14:15 9 THE COURT: I have to tell you -- this is sounding  
14:15 10 like an advanced graduate course in petrophysics or something,  
14:15 11 but I have to tell you I'm having a hard time following --  
14:15 12 making sense out of this. I'm just being honest.

14:15 13 I understand his conclusions which he's stated.  
14:16 14 I'm not sure you have got those all in yet. And I have a  
14:16 15 general sense of what he is saying. He first talked about what  
14:16 16 BP did and he looked at BP's pre- and post-casualty geophysics  
14:16 17 or whatever we call it.

14:16 18 MR. HILL: Petrophysics.

14:16 19 THE COURT: Petrophysics. And what, in his opinion,  
14:16 20 that showed or should have told BP. Now he is talking about  
14:16 21 his own studies. I assume he reached the same conclusion.

14:16 22 We may be going into a whole lot more depth  
14:16 23 here -- no pun intended.

14:16 24 MR. HILL: That's fair, Your Honor. Let me shorten  
14:16 25 the invasion zone and just maybe have him recap his

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14:16 1 conclusions.

14:16 2           **THE COURT:** You are talking to a business major here.  
14:16 3 So we have to put this in -- if you want this to have -- make  
14:16 4 sense to me, we have to make it a little clearer, in layman's  
14:17 5 terms.

14:17 6 **BY MR. HILL:**

14:17 7 **Q.** Let me see if I can ask it this way. I don't know how  
14:17 8 detailed the cross-examination is going to be, so perhaps that  
14:17 9 will dictate whether we come back to any of this.

14:17 10           Are you aware --

14:17 11           **MR. REGAN:** I think I got my instructions.

14:17 12 **BY MR. HILL:**

14:17 13 **Q.** Based on your quantitative analysis, Dr. Strickland, can  
14:17 14 you tell the Court what you believe -- first, can you tell the  
14:17 15 Court your opinion as to whether or not the M57B was  
14:17 16 hydrocarbon-bearing.

14:17 17 **A.** Yes. I think the M57B is a hydrocarbon-bearing zone.

14:17 18 **Q.** What type of hydrocarbon?

14:17 19 **A.** Most likely gas.

14:17 20 **Q.** Can you tell the Court what you believe to be the  
14:17 21 hydrocarbon content within 57B.

14:17 22 **A.** Somewhere in the 40 to 70 percent -- I'm sorry. Is that  
14:17 23 right? About 45 to 70 percent range.

14:17 24 **Q.** That's based on the range of calculations you did that we  
14:17 25 showed up on the demonstrative, correct?

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14:17 1 A. That's correct.

14:17 2 Q. Did you calculate the pore pressure associated with the  
14:17 3 M57B sand?

14:17 4 A. I did. That's the second part of my study.

14:17 5 Q. Can you tell the Court what that means, if a sand has a  
14:18 6 pore pressure?

14:18 7 A. It's the pressure inside the rock. And this is a fairly  
14:18 8 high pressure. I calculated it to be 12,871 pounds per square  
14:18 9 inch, or converting that into a density equivalent of mud, I  
14:18 10 think that's 14.15 pounds per gallon.

14:18 11 Q. Without going into them, have you reviewed other logs that  
14:18 12 were in the possession of BP that in your opinion identified  
14:18 13 M57B as a hydrocarbon-bearing sand?

14:18 14 A. Yes.

14:18 15 Q. Can you give me an example.

14:18 16 MR. HILL: 3541, please.

14:18 17 THE WITNESS: The CMR, for example, would be one.

14:18 18 BY MR. HILL:

14:18 19 Q. How about the laminated sands analysis?

14:18 20 A. Yeah. You said "in the possession of BP." Okay. I  
14:18 21 thought you meant -- I heard "calculated by BP."

14:18 22 Q. In the possession of BP, yes.

14:18 23 A. That would be the laminated sand analysis calculated by  
14:18 24 Schlumberger.

14:18 25 Q. I think the Court is clear as to what your opinions are

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14:18 1 and how you got there. I would just like to follow up with one  
14:19 2 last issue.

14:19 3 This Court has heard testimony about something called  
14:19 4 a Show Report. Do you know what a Show Report is?

14:19 5 A. Yes.

14:19 6 Q. What is it?

14:19 7 A. It is a report recorded at the time of drilling of whether  
14:19 8 or not -- after they drilled through a zone, whether or not  
14:19 9 they saw anything at the surface that would reflect that the  
14:19 10 zone they just drilled through might be a hydrocarbon-bearing  
14:19 11 zone.

14:19 12 Q. How does that data get back to the rig? How does that  
14:19 13 Show Report get generated? Do you know?

14:19 14 A. Well, yes. There's a couple of parts to a Show Report.  
14:19 15 But the physical cuttings that the bit drilled through are  
14:19 16 transported back up to the surface via the mud system, and they  
14:19 17 are collected at the surface over about a 10- to 20-foot  
14:19 18 interval of drilling. And then a geologist, a well site  
14:19 19 geologist looks at those. That's one.

14:19 20 The other are the mud system is bringing up whatever  
14:19 21 it drilled through, too, not only the rock samples. But if  
14:20 22 there was any hydrocarbons that it finds, it comes up that way  
14:20 23 also, and there's detectors at the surface to detect that.

14:20 24 Q. So in your analysis did you see a Show Report for this  
14:20 25 depth of 17,467 that's been associated with the M57B zone?

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14:20 1 A. Did not.

14:20 2 Q. Would you expect to see such a Show Report?

14:20 3 A. No, I wouldn't.

14:20 4 Q. Why not?

14:20 5 A. Well, for two reasons: One, at the time of drilling of  
14:20 6 this, the well was in an overbalanced position; that is, the  
14:20 7 hydrostatic pressure exerted by the mud was higher than the  
14:20 8 formation pressure. So I don't think the formation is going to  
14:20 9 give up hydrocarbons into the mud system that could be  
14:20 10 measured.

14:20 11 And, two, it's a very thin zone. And as the bit is  
14:20 12 drilling, it's forcing out in front of it very high pressure,  
14:20 13 high rate volume of fluid that's pounding the rock right before  
14:20 14 the cones cut it. And so it's flushing out anything that might  
14:20 15 be there. And then it drills through it and it's only two feet  
14:21 16 thick, so it drills through it in just, what, like five minutes  
14:21 17 or less, something like that. So it's very fast.

14:21 18 Q. Thank you.

14:21 19 MR. HILL: Your Honor, I will pass the witness.

14:21 20 THE COURT: All right.

14:21 21 MR. HILL: Thank you, Dr. Strickland.

14:21 22 THE WITNESS: Thank you.

14:21 23 THE COURT: PSC?

14:21 24 MR. BREIT: Judge, I decided that Corey would be  
14:21 25 better at this than I would be.



14:21 1 THE COURT: Let's take it in order. United States?

14:21 2 MR. CERNICH: No questions, Your Honor.

14:21 3 THE COURT: Alabama?

14:21 4 MR. REGAN: Your Honor, if I just might make one  
14:21 5 statement for the record.

14:21 6 From our view, Dr. Strickland's report from  
14:21 7 Halliburton is exclusively as to BP, and his report is in as a  
14:21 8 direct exam. So from the standpoint of doing another what I  
14:21 9 think could only be called a direct exam because of adversity,  
14:21 10 I think we probably have had a direct exam done. But I  
14:21 11 understand that --

14:21 12 THE COURT: I don't know what the questions are going  
14:22 13 to be, but I think they have a right to ask questions.

14:22 14 MR. REGAN: Fair enough, Judge.

14:22 15 THE COURT: Did you study petrophysics?

14:22 16 MR. MAZE: I did, Your Honor. And, in fact -- Corey  
14:22 17 Maze for the State of Alabama. I'm about to call my  
14:22 18 examination "Petrophysics 101." I was going to call it  
14:22 19 "Petrophysics for Dummies," but I didn't want to insinuate  
14:22 20 anything. So in fact --

14:22 21 THE COURT: I think I have already exposed myself.

14:22 22 MR. MAZE: I'm going to prove that by -- I think I  
14:22 23 introduced myself.

24

25

**CROSS-EXAMINATION**

1  
2 **BY MR. MAZE:**

3 **Q.** Dr. Strickland, I'm Corey Maze for the State of Alabama.

4 And the first thing I want to do is, while you were  
5 going through your direct examination, I tried to write down --

6 **MR. MAZE:** If I can get the ELMO, please, Carl.

7 **BY MR. MAZE:**

8 **Q.** I tried to write down my best Petrophysics 101  
9 understanding of what the triple combo log actually does.

10 Am I correct in saying that the left side, the gamma  
11 ray, the farther it goes to the left, it's showing you sand  
12 versus shale?

13 **A.** Yes.

14 **Q.** The middle, resistivity, if it goes to the right, it's  
15 more likely to be hydrocarbon than water?

16 **A.** Yes.

17 **Q.** And that's a way that you can tell saturation between  
18 water saturation versus hydrocarbon saturation?

19 **A.** Yeah. The thing will kick left. The resistivity will  
20 kick left if it's full of water.

21 **Q.** Right. And to the right if you are having hydrocarbon?

22 **A.** Yes.

23 **Q.** Neutron density is two different lines. The first one  
24 that goes to the right is showing you if there's a crossover.  
25 The blue one will show you that there's evidence of at least

## RICHARD STRICKLAND - CROSS

14:23 1 gas based on the porosity.

14:23 2 A. Well, both curves move in the presence of porosity.

14:23 3 Q. Okay.

14:23 4 A. So they can come together or close to it. That signifies  
14:23 5 porosity, which is important. No matter what the content is,  
14:23 6 does the rock have porosity? If it's got porosity, you look at  
14:23 7 the resistivity. If it's got high resistivity, is it a sand?  
14:24 8 If you look at the gamma ray, you're home free.

14:24 9 Q. I'm sorry. Reading your deposition, you teach a class  
14:24 10 that you called -- in deposition you called Engineering 101,  
14:24 11 correct?

14:24 12 A. That's correct.

14:24 13 Q. Is there anything you would add to this to help with a  
14:24 14 sort of Petrophysics 101 for the combo log?

14:24 15 A. Well, yes. This is not a quantitative look. This is a  
14:24 16 qualitative first look. We call it a quick look.

14:24 17 Q. In fact, that's exactly where I'm going.

14:24 18 **MR. MAZE:** But before we get there, I want to mark  
14:24 19 that as Demonstrative 3275, TREN-23073.

14:24 20 This way, Your Honor, hopefully that will help  
14:24 21 you understand when you are having to go through the accordion  
14:24 22 file later.

14:24 23 Carl, if you can bring up Demonstrative 3272.  
14:24 24 That's TREN-23071.

25

## RICHARD STRICKLAND - CROSS

14:24 1 BY MR. MAZE:

14:24 2 Q. I don't know if you actually said out loud the conclusion  
14:25 3 that you came to in your report. So if you didn't, let me ask.

14:25 4 I'm going to the second conclusion, and that is to  
14:25 5 Ms. Skripnikova. Was your conclusion that her determination of  
14:25 6 the highest hydrocarbon-bearing zone was superficial and  
14:25 7 incomplete?

14:25 8 A. Yes.

14:25 9 Q. I want to go into that a little bit.

14:25 10 What I have here is a demonstrative that illustrates  
14:25 11 the type of information that Ms. Skripnikova had in her  
14:25 12 possession during this time period. If you will just take a  
14:25 13 few moments to look it over.

14:25 14 A. Okay.

14:25 15 Q. April 9 was the date of final depth, correct? That final  
14:25 16 depth was reached, they finished drilling on April 9?

14:25 17 A. Yes.

14:25 18 Q. Before that I think I heard you testify that she -- that  
14:25 19 not she, but there was LWD and MWD. This is while drilling  
14:25 20 data is being received, correct?

14:25 21 A. That's correct.

14:25 22 Q. After final depth was reached, Ms. Skripnikova went to the  
14:26 23 rig, correct?

14:26 24 A. Yes.

14:26 25 Q. And the reason was to view the wireline logging

## RICHARD STRICKLAND - CROSS

14:26 1 information as it came in?

14:26 2 A. That's correct.

14:26 3 Q. The three things I have underneath are all different types  
14:26 4 of logs and tests that Ms. Skripnikova received on April 11,  
14:26 5 correct?

14:26 6 A. Yes, that's correct.

14:26 7 Q. Okay. I see you're puzzled, so if there's anything  
14:26 8 else --

14:26 9 A. No, that's fine. I just remembered that the OBMI was run  
14:26 10 on April 11.

14:26 11 Q. Let me ask you this. If it wasn't April 11 exactly, was  
14:26 12 it before she left the rig on April 14?

14:26 13 A. That's correct.

14:26 14 Q. You have evidence, and it's in your report and in your  
14:26 15 deposition, that she logged this data into her computer  
14:26 16 software, correct?

14:26 17 A. Correct.

14:26 18 **MR. REGAN:** Your Honor, I just want to object to the  
14:26 19 leading nature of the questions. Again, directionally, I don't  
14:26 20 know where we are going. But . . .

14:26 21 **THE COURT:** Overruled.

14:26 22 **MR. MAZE:** I'm just trying to help, Your Honor, to  
14:26 23 get there a little bit quicker.

14:27 24 **BY MR. MAZE:**

14:27 25 Q. April 13 is the e-mail that she sent to Mr. Bodek,

## RICHARD STRICKLAND - CROSS

14:27 1 correct, that says she thinks that M56A is the highest  
14:27 2 hydrocarbon-bearing zone?

14:27 3 A. Yes. We looked at that.

14:27 4 MR. MAZE: If I may approach, Your Honor?

14:27 5 BY MR. MAZE:

14:27 6 Q. Well, first, before I do that, everything we have looked  
14:27 7 at so far today has been blown up very large on a screen,  
14:27 8 hasn't it?

14:27 9 A. Correct.

14:27 10 Q. That's because we have all this digital data that we can  
14:27 11 input and blow up and see a lot easier?

14:27 12 A. That's true.

14:27 13 Q. That's not what Ms. Skripnikova did on the rig, is it?

14:27 14 A. No.

14:27 15 MR. MAZE: Your Honor, may I approach just for a  
14:27 16 moment to hand him something, please?

14:27 17 THE COURT: Is this something other counsel have  
14:27 18 seen?

14:27 19 MR. MAZE: We passed it out last night. It's a  
14:27 20 blowup copy.

14:27 21 In fact, if you can hand one to Judge Barbier,  
14:27 22 it will make it easier for everybody to understand.

14:28 23 Carl, if you can go back to the ELMO, I will put  
14:28 24 a copy up on the screen so everybody can see what Judge Barbier  
14:28 25 and the witness have in their hands.

## RICHARD STRICKLAND - CROSS

14:28 1 BY MR. MAZE:

14:28 2 Q. This has been marked Demonstrative 3273, TRES-03533.32.  
14:28 3 Dr. Strickland, is this a paper copy of the triple combo log  
14:28 4 that Ms. Skripnikova had in her possession on the  
14:28 5 *Deepwater Horizon*?

14:28 6 A. Well, it's a slightly reduced size, but this is a --  
14:28 7 appears to be a Xerox of the -- it's called "Final Print." She  
14:28 8 had something like this, but on the front of it, it would have  
14:28 9 said "Field Print."

14:28 10 Q. Right. In fact, I think this is Exhibit 15 in your  
14:28 11 report, if you have your report in front of you. You used this  
14:28 12 just to show what it was she had in her possession?

14:29 13 A. That's correct.

14:29 14 Q. The point I want to make with this is: She can't blow  
14:29 15 this information up, can she? She can't make it any bigger,  
14:29 16 she can't look at anything other than what's in her hand,  
14:29 17 correct?

14:29 18 A. I wouldn't think so, no.

14:29 19 Q. Right.

14:29 20 A. No, no. I'm disagreeing with you. If you thought I was  
14:29 21 agreeing with you, I'm not.

14:29 22 Q. No. Okay. What else -- do you have any evidence that she  
14:29 23 looked at anything other than a paper copy like the one in your  
14:29 24 hand before making her decision as to what the shallowest  
14:29 25 hydrocarbon-bearing zone was?

## RICHARD STRICKLAND - CROSS

14:29 1 A. No, I do not. That's what she testified to at her  
14:29 2 deposition.

14:29 3 THE COURT: Refresh my recollection. Was this  
14:29 4 something she did and was reading while on the rig or after she  
14:29 5 left the rig?

14:29 6 MR. MAZE: Yes, sir. And I will ask  
14:29 7 Dr. Strickland --

14:29 8 THE COURT: Yes, sir. That's an ambiguous answer.  
14:29 9 Was it this or that, and you said yes?

14:29 10 MR. MAZE: I'm sorry. Was it this?

14:29 11 MR. REGAN: It was a compound question.

14:30 12 THE COURT: I sustain that objection.

14:30 13 MR. MAZE: I have always understood saying that "yes,  
14:30 14 sir" is the right answer to every judge's question.

14:30 15 THE COURT: Was this something that occurred -- I'm  
14:30 16 trying to get the timing here. As I understand it, she left  
14:30 17 the rig a few days before April 20, correct?

14:30 18 MR. MAZE: Yes.

14:30 19 Carl, if you can go back --

14:30 20 THE COURT: Wait a minute. Did this occur before she  
14:30 21 left the rig, after she left the rig, or when?

14:30 22 MR. MAZE: This is before.

14:30 23 Carl, if you can put up Demonstrative 3272.

14:30 24 This is a time line to help Your Honor  
14:30 25 understand where she was.



## RICHARD STRICKLAND - CROSS

14:30 1 BY MR. MAZE:

14:30 2 Q. Between April 10 and April 14, Ms. Skripnikova -- I'll ask  
14:30 3 this as a question, Dr. Strickland.

14:30 4 Dr. Strickland, isn't it true that between April 10  
14:30 5 and April 14, Ms. Skripnikova was on the rig, the  
14:30 6 *Deepwater Horizon*?

14:30 7 A. That's correct. That's correct.

14:30 8 Q. During that time period, she had this triple combo log,  
14:30 9 the actual paper copy of which you have a copy and  
14:30 10 Judge Barbier has a copy?

14:30 11 A. Yes.

14:30 12 Q. That is, to your understanding, the only thing that she  
14:30 13 reviewed on April 13 when making the decision what the  
14:31 14 shallowest hydrocarbon-bearing zone was, correct?

14:31 15 A. That is my understanding, yes.

14:31 16 Q. She had all of this other information at her fingertips  
14:31 17 before she left the rig, correct?

14:31 18 A. Yes.

14:31 19 Q. She left the rig on April 14; is that right?

14:31 20 A. I think that's correct, yes.

14:31 21 Q. She would have been able to -- between April 14 and  
14:31 22 April 19 -- to look at any of these other types of data on her  
14:31 23 digital screen, correct?

14:31 24 A. Yes, she could have.

14:31 25 Q. When she went back to her office onshore?

## RICHARD STRICKLAND - CROSS

14:31 1 A. Well, I think she had it on -- in a computer in digital  
14:31 2 form on the rig.

14:31 3 Q. So she could have done it any time on the rig or off the  
14:31 4 rig?

14:31 5 A. I would think so, yes.

14:31 6 Q. Any time between April 11 and April 19?

14:31 7 A. Yeah. I think it's like the 12th maybe. Well, it says:  
14:31 8 "Logs data into software."

14:31 9 So from about the 12th on, she had it, I think, on  
14:32 10 her computer.

14:32 11 Q. I want to go back to the example you gave earlier, what we  
14:32 12 talked about earlier. You have an engineering freshman class  
14:32 13 that -- I think it's called Engineering Analysis, but you call  
14:32 14 it Engineering 101, correct?

14:32 15 A. Correct.

14:32 16 Q. One of the principles -- this is a freshman class?

14:32 17 A. Yes.

14:32 18 Q. One of the principles you teach in that freshman class is  
14:32 19 how to treat uncertainty, correct?

14:32 20 A. It's one of the topics, yes.

14:32 21 Q. If you held that sheet of paper in your hand on April 11,  
14:32 22 would you have been uncertain whether or not M57B was a  
14:32 23 hydrocarbon-bearing zone?

14:32 24 A. If that's the only thing that I look at, if that's the  
14:32 25 only thing, then as I look -- the way I did it when I looked at

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1 the log, I noticed that this is one of about several zones  
2 where the density and neutron come together and we have gamma  
3 ray left, resistivity right, density and neutron coming  
4 together, classic indicators of the hydrocarbon zone.

5 Can you say that with 100 percent certainty? It's  
6 not hard to do these calculations, but if you are not going to  
7 do any calculations, I would say, yes, there's uncertainty in  
8 it.

9 Q. At that point -- again, my understanding is you would  
10 think that it shows at least there is a high probability, but  
11 in her defense, at best, it would leave it uncertain, correct?

12 A. I don't know what she was thinking and doing. I can't  
13 speak for her.

14 Q. Well, in this instance -- and this is what you had  
15 testified to in your deposition -- you would teach your  
16 freshman level class, your 101 class, if there's any  
17 uncertainty, you continue with further calculations, correct?

18 A. Sure, yes.

19 Q. Ms. Skripnikova could have looked at any of the data  
20 that's on the screen currently to help clarify that  
21 uncertainty, correct?

22 A. Yes. I make that point in my report.

23 Q. There's no information that she did anything other than  
24 look at that paper copy, correct?

25 A. That's all she testified to at her deposition, yes.

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14:34 1 Q. That's why you would call her test -- or her calling of  
14:34 2 that zone, you called that superficial, correct?

14:34 3 A. That's correct. That's correct.

14:34 4 Q. Because she did nothing after looking at that paper?

14:34 5 A. I have no other indication that she looked at anything  
14:34 6 other than that or did anything beyond that.

14:34 7 Q. Would it be fair then to say, at least as a professor,  
14:34 8 that that would be a freshman level mistake?

14:34 9 A. Yeah. If I was doing that on a quiz, I would probably ask  
14:34 10 some question like: What all kind of data should you look at?

14:34 11 Q. Let me ask it this way. If you handed your classroom in  
14:34 12 freshman level engineering this paper and said, "Determine for  
14:34 13 me what's the highest or shallowest hydrocarbon-bearing zone,"  
14:34 14 and her answer was only "M56A" and she did no other  
14:34 15 calculation, what grade would you give her?

14:35 16 A. Well, freshmen can't do that, I don't think.

14:35 17 Q. If the freshmen told you, "I pick one and do nothing  
14:35 18 else," what would you give them?

14:35 19 A. I would admonish them.

14:35 20 Q. Severely?

14:35 21 A. Yes.

14:35 22 Q. You would not admonish them with an F; you would tell them  
14:35 23 to do it over because it's freshmen, right?

14:35 24 A. Yes.

14:35 25 Q. But she's not a freshman, is she?

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14:35 1 A. No.

14:35 2 Q. She is BP's petrophysicist on a rig, correct?

14:35 3 A. Correct.

14:35 4 Q. It's a lot more important to get it right on the rig than  
14:35 5 it is in a freshman level class, isn't it?

14:35 6 A. I would think so, yes.

14:35 7 Q. In fact, it's a whole lot more important that she got it  
14:35 8 right than you sitting here in court, correct?

14:35 9 A. Her actions have direct consequences.

14:35 10 MR. MAZE: Carl, if you can bring up  
14:35 11 Demonstrative 8025.2. It's TREX-3512.

14:35 12 BY MR. MAZE:

14:35 13 Q. This is actually what we looked at earlier during  
14:35 14 Halliburton's direct. This is the e-mail from Mr. Bodek.

14:36 15 If you look at the top e-mail, would you agree that  
14:36 16 Mr. Bodek, at least, did no more than Ms. Skripnikova in  
14:36 17 determining what was the shallowest hydrocarbon-bearing zone?

14:36 18 MR. REGAN: Speculation, Your Honor.

14:36 19 MR. MAZE: If you can tell, your opinion.

14:36 20 THE COURT: Just based on this?

14:36 21 MR. MAZE: Based on the second sentence.

14:36 22 THE COURT: I don't know how he would know what  
14:36 23 Mr. Bodek did other than just reading this e-mail.

14:36 24 MR. MAZE: I'll ask it this way.

14:36 25 THE COURT: Try to restate it.

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14:36 1 BY MR. MAZE:

14:36 2 Q. I'm going to read the second sentence in that e-mail:  
14:36 3 "That the shallowest sand that we see legitimate DEN/NEU  
14:36 4 crossover on the triple combo log."

14:36 5 Other than the fact the word "that's" is incorrect,  
14:36 6 did I read that correctly?

14:36 7 A. Yes.

14:36 8 Q. Does that insinuate or give you reason to believe that  
14:36 9 Mr. Bodek was looking at the triple combo log just like  
14:36 10 Ms. Skripnikova?

14:36 11 A. Yes, it does.

14:36 12 Q. His decision that he can buy that is based solely on  
14:37 13 looking at the triple combo log?

14:37 14 A. I can infer that.

14:37 15 Q. So if you can infer that, then he made the same mistake  
14:37 16 she did in not going further?

14:37 17 MR. REGAN: Objection, Your Honor.

14:37 18 THE COURT: I'll sustain that.

14:37 19 MR. MAZE: I'll move on, then.

14:37 20 Carl, if I can go back to the ELMO, please.

14:37 21 BY MR. MAZE:

14:37 22 Q. To try to save time, I was trying just to help  
14:37 23 Judge Barbier in understanding the different types of testing  
14:37 24 that you have done in this case as compared to what  
14:37 25 Ms. Skripnikova did. And if you could look at the screen, I've

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14:37 1 labeled it Demonstrative 3274, TREX-23072.

14:37 2 These were the things that I heard you talk about  
14:37 3 during your direct examination. I'm just going to read them.

14:37 4 You viewed a triple combo log. You did Archie's  
14:37 5 equation, Simandoux, Modified Simandoux, Indonesian formula,  
14:38 6 looked at laminated sands analysis, and looked at a CMR.

14:38 7 Am I correct in all of those?

14:38 8 A. Not quite, no.

14:38 9 Q. Which one is incorrect?

14:38 10 A. For the purposes of my report, I did not look at the CMR  
14:38 11 log.

14:38 12 Q. So I'm going to take that off.

14:38 13 Did you look at the LWD or the MWD log for the  
14:38 14 purpose of your report?

14:38 15 A. I had looked at them, yes. They were not primary in my  
14:38 16 calculations of water saturation.

14:38 17 Q. Is there anything else that you looked at, whether it's an  
14:38 18 OBMI or any other types of logs or data that I don't have on  
14:38 19 this list?

14:38 20 A. Well, I reviewed in detail all the logs. I did not reveal  
14:38 21 in as much detail the CMR because I was late in getting that  
14:38 22 log. But yes, I reviewed the other logs also, the dipmeter  
14:38 23 log, which I had some comments about in my report.

14:38 24 Q. Did you say "dip," d-i-p?

14:39 25 A. Yes, dipmeter.

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14:39 1 Q. Does that seem to be a pretty comprehensive list of the  
14:39 2 things that you did in coming to your analysis or your  
14:39 3 conclusion?

14:39 4 A. Well, I did a lot more than that, but those are some of  
14:39 5 the primary sources.

14:39 6 MR. MAZE: Carl, if you can bring up  
14:39 7 Demonstrative 8025.

14:39 8 BY MR. MAZE:

14:39 9 Q. I just want to bring up one point about this.

14:39 10 You have looked at this a lot during your direct  
14:39 11 examination, correct?

14:39 12 A. Yes, it was part of it.

14:39 13 Q. This is --

14:39 14 MR. MAZE: Walter, can you hand me the laser pen,  
14:39 15 please.

14:39 16 BY MR. MAZE:

14:39 17 Q. I think the point was to show how BP's analysis has  
14:39 18 changed over time. I want to ask you one set of questions  
14:39 19 about this November 7 through January 12 period.

14:40 20 First of all, you have read the Richard Lee and  
14:40 21 Leif Colson report, correct?

14:40 22 A. Yes.

14:40 23 Q. Did you read their deposition testimony -- or Mr. Colson's  
14:40 24 deposition testimony?

14:40 25 A. I did.



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14:40 1 Q. So you understand that their report on November 7 said  
14:40 2 that there was a gas saturation of 45 percent. But then at his  
14:40 3 deposition, Mr. Colson changed his opinion to a gas saturation  
14:40 4 of 28 percent, correct?

14:40 5 A. Yes.

14:40 6 Q. So the question is: What happened between these two  
14:40 7 times?

14:40 8 Dr. Strickland, do you remember what day you were  
14:40 9 deposed in this case?

14:40 10 A. November 11 or something.

14:40 11 Q. I will help you out.

14:40 12 MR. MAZE: Carl, if you can bring up TREX-22637.

14:43 13 BY MR. MAZE:

14:43 14 Q. This is a copy of the front page of your deposition. I'm  
14:41 15 going to pull it up there. Do you see the date?

14:41 16 A. Yes, I do.

14:41 17 Q. Does that ring a bell, December 20, 2011?

14:41 18 A. Yes.

14:41 19 Q. Do you remember being asked if you thought there was sort  
14:41 20 of a baseline level of gas saturation that you said that if it  
14:41 21 went beyond that, then it was definitely going to be a  
14:41 22 hydrocarbon-bearing zone?

14:41 23 A. Well, in my report I discuss that.

14:41 24 Q. Right.

14:41 25 A. And I said that gas saturations of 30 percent or greater

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1 will flow if given a pressure drop and having some  
2 permeability. But . . .

3 Q. Do you remember being asked by BP's attorney during this  
4 deposition whether you considered that 30 percent gas  
5 saturation to be a threshold?

6 A. Yeah. What I did was try to -- for practical purposes of  
7 this matter, I tried to pick a number that I thought would not  
8 be controversial. But actually, gas will flow at a lot lower  
9 saturations than that. But 30 percent, I think all reservoir  
10 engineers are going to agree that if it's got permeability  
11 and -- if a Miocene sand that has permeability and has  
12 30 percent gas and a pressure drop, then, yeah, it's going to  
13 flow.

14 Q. You will agree that you said that was a noncontroversial  
15 number; that if it's 30 percent, then everyone would agree that  
16 it's a hydrocarbon-bearing zone?

17 A. There's a lot of controversy on the nomenclature there.  
18 But I think they would all say it's a gas -- it's a sand that  
19 contains gas that would flow in response to a pressure drop.

20 MR. MAZE: Just real briefly, Carl, if you can bring  
21 up page 159, lines 9 through 15. This is the last we will talk  
22 about it. Just cut out or highlight lines 9 through 15.

23 BY MR. MAZE:

24 Q. The question you were asked specifically was:

25 "QUESTION: Okay. So in your view" --

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14:42 1 MR. REGAN: Just one second.

14:42 2 Again, I'm still confused whether it's cross or  
14:42 3 direct. But I think on either one, you can't put up a  
14:42 4 witness's deposition testimony and just show it to them. He's  
14:42 5 either going to have to say he's got a prior inconsistent  
14:43 6 answer or maybe some other basis. But I don't know what the  
14:43 7 basis is for this.

14:43 8 MR. MAZE: That's fine. You can take it down, Carl.

14:43 9 BY MR. MAZE:

14:43 10 Q. You've testified that you -- you said that it was a  
14:43 11 threshold, 30 percent was a threshold, correct?

14:43 12 A. It was a reasonable number to use, right.

14:43 13 Q. After you said that in your deposition, then BP's report  
14:43 14 changed down to 28 percent, correct?

14:43 15 A. I saw that.

14:43 16 Q. The last point -- and I just want to go through this very  
14:43 17 quickly.

14:43 18 MR. MAZE: Carl, if we can get the ELMO back on,  
14:43 19 please. This is TREN-00001.023.

14:43 20 This is just to help Judge Barbier determine the  
14:43 21 scope of your opinion and what you can and can't say.

14:44 22 BY MR. MAZE:

14:43 23 Q. Have you seen the Bly report?

14:43 24 A. Yes, I have.

14:43 25 Q. I thought I was making this easier, but apparently I

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14:44 1 wasn't.

14:44 2 **MR. MAZE:** Carl, can you just bring that up as its  
14:44 3 own demonstrative, TRES-1.023?

14:44 4 **MR. REGAN:** I think this topic was expressly covered  
14:44 5 on the direct exam that's already taken place.

14:44 6 **MR. MAZE:** It actually wasn't, Your Honor. I'm just  
14:44 7 going to ask him what he can and can't say about causation.  
14:44 8 I'm trying to show whether he can actually link his testimony  
14:44 9 of today to what actually caused the rig to blow up, which is  
14:44 10 actually what I think Mr. Regan proposed to do before we did  
14:44 11 this.

14:44 12 **THE COURT:** Go ahead.

14:44 13 **BY MR. MAZE:**

14:44 14 **Q.** Mr. Colson -- or, Dr. Strickland, excuse me.

14:44 15 **THE COURT:** I think you almost pointed that thing in  
14:44 16 your eye.

14:44 17 **MR. MAZE:** I have actually done that once already in  
14:44 18 this case. I'll be going to the hospital.

14:44 19 **BY MR. MAZE:**

14:44 20 **Q.** The top of cement in this case -- and the Bly report says  
14:44 21 17,260. It's your understanding that Halliburton was asked to  
14:44 22 pour at 17,300, correct?

14:45 23 **A.** Yeah, that's correct.

14:45 24 **Q.** So what we're really talking about here is under the MMS  
14:45 25 regulation, if we had found the M57B zone, which is right here

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14:45 1 at 17,467, we would have had to have poured more cement up into  
14:45 2 the annulus, correct?

14:45 3 **MR. REGAN:** I think we are getting outside of the  
14:45 4 scope of the witness's report.

14:45 5 **MR. MAZE:** That's actually why I'm doing this, is  
14:45 6 just to show where his report stops.

14:45 7 **THE COURT:** I'll overrule the objection.

14:45 8 **THE WITNESS:** Yes. If you want 500 feet of cement  
14:45 9 over the M57B, you would need more cement.

14:45 10 **BY MR. MAZE:**

14:45 11 **Q.** Right. There was 167 feet of cement above the M57B zone,  
14:45 12 correct?

14:45 13 **A.** Yes.

14:45 14 **THE COURT:** I think this business major can do that  
14:45 15 math.

14:45 16 **MR. MAZE:** He can. And I'm going to ask him to  
14:45 17 really use --

14:45 18 **THE COURT:** That doesn't take a petrophysicist to  
14:45 19 figure that out.

14:45 20 **BY MR. MAZE:**

14:45 21 **Q.** So basically what we're arguing about here is whether or  
14:45 22 not we needed to pour 333 more feet of cement right here,  
14:45 23 correct?

14:46 24 **A.** Yes.

14:46 25 **Q.** You give no opinion as to whether or not the flow of

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1 hydrocarbons from M57B actually went up the annulus through  
2 that extra 333 feet of hypothetical cement, do you?

3 A. No, I have no opinion on that.

4 Q. Because of that, you can't testify that the failure to  
5 pour an extra 333 feet of cement actually led to the explosion  
6 on the *Deepwater Horizon*, can you?

7 A. I don't have any calculations or anything to present to  
8 the Court on that.

9 Q. You have no opinion as to which way the oil or gas would  
10 have flowed out of the M57B, even if it did, correct?

11 Well, let me ask that as two questions. I'll take  
12 that back.

13 Do you have an opinion as to whether gas or other  
14 hydrocarbons flowed out of the M57B zone before the explosion  
15 on the *Deepwater Horizon*?

16 A. All I know, it's capable of that. I don't have an opinion  
17 that it did or didn't.

18 MR. MAZE: That's all, Your Honor.

19 THE COURT: Thank you.

20 Louisiana.

21 MR. KANNER: Thank you, Your Honor. No questions.

22 THE COURT: Transocean.

**CROSS-EXAMINATION**

24 BY MR. MILLER:

25 Q. Good afternoon, Dr. Strickland.

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14:47 1 A. Good afternoon.

14:47 2 Q. My name is Kerry Miller. I represent Transocean, and I  
14:47 3 have you under cross-examination.

14:47 4 I want to pick up where Mr. Maze left off, and I only  
14:48 5 have a couple questions for you.

14:48 6 Had BP determined that the M57B was the highest  
14:48 7 hydrocarbon-bearing zone, a greater cement volume would have  
14:48 8 been used in the cement job, correct?

14:48 9 MR. REGAN: Objection, Your Honor. Outside the scope  
14:48 10 of his opinion.

14:48 11 THE COURT: Well, it sounds like the same question  
14:48 12 that was just asked.

14:48 13 MR. MILLER: It's really the next question I want to  
14:48 14 ask him and move on.

14:48 15 THE COURT: Get to the next question.

14:48 16 MR. MILLER: Okay. The next question is this.

14:48 17 BY MR. MILLER:

14:48 18 Q. Had more volume been used --

14:48 19 THE COURT: Let's see if this is objectionable.

14:48 20 BY MR. MILLER:

14:48 21 Q. Had more volume been used, that would have increased the  
14:48 22 chances of achieving zonal isolation, correct?

14:48 23 MR. REGAN: Outside the scope of his opinion,  
14:48 24 Your Honor. He has no opinions on zonal --

14:48 25 THE COURT: I thought I just heard him say a few

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14:48 1 minutes ago he has really got no opinion or no calculations on  
14:48 2 that.

14:48 3 **MR. MILLER:** And I posed a slightly different  
14:48 4 question, Your Honor.

14:48 5 **MR. HILL:** Could I provide a little clarity?

14:49 6 **THE COURT:** No, no, no, no, no.

14:49 7 **MR. HILL:** There are other witnesses coming.

14:49 8 **THE COURT:** I will just sustain the objection.

14:49 9 **MR. MILLER:** I'm trying to make sense out of all this  
14:49 10 geophysics, Your Honor.

14:49 11 **THE COURT:** Did you study petrophysics, too?

14:49 12 **MR. MILLER:** No, not at LSU, Your Honor. I skipped  
14:49 13 that class.

14:49 14 **THE WITNESS:** They teach it.

14:49 15 **MR. MILLER:** Among many others.

14:49 16 **BY MR. MILLER:**

14:49 17 **Q.** Let's talk about something -- let's back up three steps,  
14:49 18 just to make sure I understand it.

14:49 19 The determination of the highest hydrocarbon-bearing  
14:49 20 zone, that is related to -- directly related to where the top  
14:49 21 of cement needs to be pursuant to the regulations, correct?

14:49 22 **A.** That's my understanding.

14:49 23 **Q.** That difference between the highest hydrocarbon-bearing  
14:49 24 zone, which is my left hand right here, and the top of cement,  
14:49 25 which is what is imposed by regulations, which is higher,



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14:50 1 correct?

14:50 2 A. Yes.

14:50 3 Q. The difference is the safety margin, is it not?

14:50 4 MR. REGAN: Objection, Your Honor. He can read the  
14:50 5 regulation and know the number. But the basis of it and all  
14:50 6 the rest, he expressly said in his opinions and in his  
14:50 7 deposition that this is not an area he is --

14:50 8 THE COURT: I'll sustain the objection.

14:50 9 BY MR. MILLER:

14:50 10 Q. Just one quick question for you, Dr. Strickland, on your  
14:50 11 flow rate calculations.

14:50 12 As I understand it, the only flow rate calculation  
14:50 13 you did pertained to 9:30 --

14:50 14 MR. MILLER: I know it's in his rebuttal report. If  
14:50 15 it's out, it's out -- is it, Your Honor? Is his rebuttal  
14:50 16 report out?

14:50 17 MR. REGAN: It's out.

14:50 18 THE COURT: It's not in.

14:50 19 MR. MILLER: It's not in. It's out, no matter what  
14:50 20 happens in their case, when they bring Mr. Crook or Mr. Sabins  
14:50 21 back and resurrect him, right?

14:50 22 MR. REGAN: I object.

14:50 23 MR. MILLER: As long as his rebuttal report is out, I  
14:50 24 don't need to ask the question.

14:50 25 THE COURT: Well, it's not in at this point. That's

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14:50 1 all I can say.

14:50 2 MR. MILLER: Well, since it's not in, I won't ask the  
14:50 3 question.

14:51 4 BY MR. MILLER:

14:51 5 Q. Now, in terms of wherever the hydrocarbon-bearing zones  
14:51 6 are, the fact is that the location of the hydrocarbon-bearing  
14:51 7 zones does not relieve the cement contractor from properly  
14:51 8 designing a slurry, correct?

14:51 9 MR. HILL: Objection, Your Honor, outside the scope.

14:51 10 MR. MILLER: He's Halliburton's expert.

14:51 11 MR. HILL: He hasn't said anything about cement  
14:51 12 design. He hasn't been put up on it. It's not even mentioned  
14:51 13 in his report. He's a petrophysicist, not a cement designer.

14:51 14 THE COURT: I will let him answer that if he can.

14:51 15 Can you answer that, sir?

14:51 16 THE WITNESS: I don't do cement design. I've learned  
14:51 17 more about cement design in this matter than I ever knew.

14:51 18 BY MR. MILLER:

14:51 19 Q. Can you answer the question?

14:51 20 A. Would you state it one more time.

14:51 21 Q. Does the cement contractor get a free pass if the operator  
14:51 22 doesn't disclose the highest hydrocarbon-bearing zone in terms  
14:51 23 of properly designing the cement slurry?

14:51 24 MR. HILL: Same objection.

14:52 25 THE WITNESS: I wouldn't have an opinion on that.

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14:52 1 BY MR. MILLER:

14:52 2 Q. Sir, do you know, does it -- I assume you would say the  
14:52 3 same thing with respect to testing of a cement slurry, correct?  
14:52 4 No opinion?

14:52 5 A. That's correct.

14:52 6 MR. MILLER: That's all I have, Your Honor.

14:52 7 THE COURT: BP.

14:52 8 You are looking at the clock. Do you want to  
14:52 9 take a recess?

14:52 10 MR. REGAN: I think in terms -- I'm going to have  
14:52 11 probably at least an hour. I'm going to try to cut it back.

14:52 12 THE COURT: Let's take a 15-minute recess.

14:52 13 THE DEPUTY CLERK: All rise.

14:52 14 (Recess.)

15:10 15 THE COURT: Please be seated, everyone.

15:10 16 All right, Mr. Regan.

15:11 17 MR. REGAN: Thank you, Your Honor.

15:11 18 CROSS-EXAMINATION

15:11 19 BY MR. REGAN:

15:11 20 Q. Matt Regan for BP and I have you on cross-examination.

15:11 21 Good afternoon, Dr. Strickland.

15:11 22 A. Good afternoon, Mr. Regan.

15:11 23 Q. Dr. Strickland, is it correct that you do not have an  
15:11 24 opinion as to whether M57B was a causal factor in any way  
15:11 25 related to the blowout on April 20?

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15:11 1 A. That's correct.

15:11 2 Q. Is it correct -- did you ever review Gene Beck's report,  
15:11 3 another expert for Halliburton?

15:11 4 A. I did.

15:11 5 Q. Did you review his deposition? Do you know?

15:11 6 A. I don't recall. I probably did.

15:11 7 Q. Let me put up Mr. Gene Beck's deposition transcript of  
15:11 8 December 15, page 167, lines 22 to 23.

15:11 9 My question, Mr. -- Dr. Strickland, excuse me, is do  
15:11 10 you recall seeing Dr. Beck's testimony.

15:11 11 "QUESTION: Do you believe the M57B zone was causal  
15:11 12 of the blowout?

15:11 13 "ANSWER: No."

15:11 14 Do you recall seeing that?

15:11 15 A. No, I don't. So I probably didn't review it.

15:11 16 Q. Fair enough.

15:12 17 With respect to cementing operations, is it fair to  
15:12 18 say that you do not have an independent opinion about whether  
15:12 19 M57B had an impact on the cement job at Macondo? Correct?

15:12 20 A. I don't have an opinion on that.

15:12 21 Q. You did not evaluate or render any opinions as to whether  
15:12 22 M57B interfered in any way with the cementing operations,  
15:12 23 correct?

15:12 24 A. No opinion.

15:12 25 Q. Similarly, you have no opinion as to whether M57B impacted

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15:12 1 the success or failure of Halliburton's cement job, correct?

15:12 2 A. No opinion.

15:12 3 Q. You have no opinion about whether M57B -- or independent  
15:12 4 of M57B, whether there was channeling with respect to the  
15:12 5 cement job, correct?

15:12 6 A. No independent opinion on that.

15:12 7 Q. You discussed that you have done a number of field  
15:12 8 studies, I think 300 to 400 of those. You have written, I  
15:12 9 think, 22 articles and you have testified a number of times,  
15:12 10 correct?

15:12 11 A. Yes.

15:13 12 Q. Your professional experience is primarily as a reservoir  
15:13 13 engineer, correct?

15:13 14 A. Correct.

15:13 15 Q. You have never worked as a well log analyst, correct?

15:13 16 A. As a well log analyst?

15:13 17 Q. Yes, sir.

15:13 18 A. Well, this last job, I guess you could say I was working  
15:13 19 as a well log analyst.

15:13 20 Q. Meaning recently you did?

15:13 21 A. I take the word "well log analyst" to mean, like, someone  
15:13 22 working for Schlumberger and running the logs. I have not done  
15:13 23 that.

15:13 24 Q. Okay. How about with respect to the type of work that  
15:13 25 Ms. Skripnikova did on the rig? It's correct that you have

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15:13 1 never been involved in being on a rig and making a well logging  
15:13 2 decision or evaluation while being offshore; is that correct?

15:13 3 A. Not offshore. Onshore, yes. Not offshore.

15:13 4 Q. In this case, you were asked to identify a top  
15:13 5 hydrocarbon-bearing zone, correct?

15:13 6 A. Yes.

15:13 7 Q. This is the first time in your career you have been asked  
15:13 8 to render an opinion as to whether something was a top  
15:13 9 hydrocarbon-bearing zone, correct?

15:13 10 A. I have never heard the term used like that before this  
15:14 11 matter.

15:14 12 Q. You have obviously -- you've never done such work on  
15:14 13 behalf of the government to determine whether somebody did or  
15:14 14 did not comply with the regulations, correct?

15:14 15 A. That's a pretty broad question.

15:14 16 Q. Let me see if I can make it more clear.

15:14 17 Has the federal government ever hired you on behalf  
15:14 18 of the MMS to make a determination as to whether an operator  
15:14 19 complied or did not comply with a regulation determining  
15:14 20 whether cement was poured 500 feet above the uppermost  
15:14 21 hydrocarbon-bearing zone?

15:14 22 A. I have not.

15:14 23 Q. Now, The Strickland Group, that's the name of your -- of  
15:14 24 the company you work for, correct?

15:14 25 A. That's correct.

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15:14 1 Q. You founded that group; is that right?

15:14 2 A. Yes.

15:14 3 MR. REGAN: If we can just pull up TREX-60875.6.1.

15:14 4 BY MR. REGAN:

15:14 5 Q. I believe this is your report. Here in this Paragraph 14,  
15:14 6 you say -- you describe some of the services that your group  
15:15 7 provides, correct?

15:15 8 A. Yes.

15:15 9 Q. You say that you have done work in the U.S., the Gulf of  
15:15 10 Mexico, and all over the world, correct?

15:15 11 A. That's correct.

15:15 12 Q. Including you have done some work in India; is that right?

15:15 13 A. Yes.

15:15 14 Q. Recently or?

15:15 15 A. That's been over 10 years.

15:15 16 Q. We had -- Dr. Calvert was just leaving here to go to  
15:15 17 India.

15:15 18 You have also done litigation support services,  
15:15 19 correct?

15:15 20 A. Yes.

15:15 21 Q. You have been deposed over 50 times; is that right?

15:15 22 A. That's correct.

15:15 23 Q. In any of the litigation cases that you have been involved  
15:15 24 in before this one, Dr. Strickland, did any of them involve you  
15:15 25 opining about what a top hydrocarbon-bearing zone was?

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15:15 1 A. No.

15:15 2 Q. Petrophysics. I would like to see if I can ask you a few  
15:15 3 questions about what this science is.

15:15 4 Would you agree that it is a science that deals with  
15:15 5 fundamental chemical and physical properties of porous media  
15:15 6 and, in particular, reservoir rocks and their contained fluids?

15:15 7 A. There's a lot of -- there's a lot of sciences that pertain  
15:15 8 to that. Petrophysics is one of those, yes.

15:16 9 Q. So you look at storage properties or porosity; is that  
15:16 10 right?

15:16 11 A. True.

15:16 12 Q. Or what can the rock actually hold, right?

15:16 13 A. That's correct.

15:16 14 Q. You look at flow properties, which is like permeability;  
15:16 15 is that right?

15:16 16 A. Yes, that's usually done in a greater extent in reservoir  
15:16 17 engineering work, working with cores and making those  
15:16 18 predictions.

15:16 19 Q. Fluid identification, fluid distribution, measuring  
15:16 20 pressure, electrical conductivity, these are all things that  
15:16 21 petrophysicists do?

15:16 22 A. That's correct.

15:16 23 Q. You talked about logs earlier today, triple combo logs,  
15:16 24 wireline tools.

15:16 25 You're familiar with BHA tools; is that right?



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15:16 1 A. Bottom hole assembly tools, yes.

15:16 2 Q. Measuring while drilling or logging while drilling, that's  
15:16 3 taking measurements while you're actually drilling the well,  
15:16 4 correct?

15:16 5 A. Yes.

15:16 6 Q. Now, does any of those logs actually measure the fluid  
15:16 7 saturation directly?

15:16 8 A. No.

15:16 9 Q. So when you look at these logs in the accordion file that  
15:16 10 you have, you are analyzing indirect measurements, correct?

15:17 11 A. They are recording measurements from which you calculate  
15:17 12 saturations.

15:17 13 Q. Right.

15:17 14 So the materials that the Court has seen -- and I'm  
15:17 15 going to endeavor not to get too much into it, but the  
15:17 16 materials on the accordion file, those are various types of  
15:17 17 measurements, but they are indirect measurements of what  
15:17 18 actually is contained in the reservoir or in a rock, correct?

15:17 19 A. They are direct measurements.

15:17 20 Take the gamma ray. The gamma ray measures the  
15:17 21 radioactivity -- natural radioactivity of the formation.

15:17 22 Q. Right. But the gamma ray does not say, "This gamma ray  
15:17 23 value equals oil," does it?

15:17 24 A. No, the gamma ray is used to -- as a first indicator of  
15:17 25 lithology.

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15:17 1 Q. Right. So you take a gamma ray measurement as a first  
15:17 2 indicator of lithology, and then you apply some information  
15:17 3 about lithology to give you a perspective and an assumption or  
15:17 4 educated guess about whether that lithology is consistent with  
15:17 5 hydrocarbons, correct?

15:18 6 A. No. The lithology is the lithology. Lithology is not  
15:18 7 consistent or inconsistent with hydrocarbons. It's just a  
15:18 8 lithology. It's the sand. Sand has -- usually has porosity  
15:18 9 which can hold hydrocarbons.

15:18 10 Q. So I missed a step in there. Lithology tells you what  
15:18 11 kind of rock it is -- you know that certain types of rock can  
15:18 12 better hold hydrocarbons than others -- and then you can get to  
15:18 13 the -- a judgment about whether that rock at that place could  
15:18 14 actually hold a portion of hydrocarbon?

15:18 15 A. You make calculations to that extent, yes -- or to that  
15:18 16 end.

15:18 17 Q. You are analyzing the indirect measurements of the fluids  
15:18 18 that are down in the well?

15:18 19 A. You are taking the indirect measurements and you're making  
15:18 20 calculations with them in order to determine the saturations.

15:18 21 Q. Then you are interpreting them, correct?

15:18 22 A. Sure.

15:18 23 Q. You can calibrate a petrophysical analysis if you take the  
15:19 24 interpretation and compare it to core analyses, right?

15:19 25 A. You can calibrate some of the numbers, yes.

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15:19 1 Q. Just for the Court's benefit, there's actually devices  
15:19 2 they can send downhole that will physically punch out into the  
15:19 3 rock, pull cores into the device, take it all the way back up  
15:19 4 to the rig, send it onshore for analysis, right?

15:19 5 A. They don't punch it; they drill it in this case. But yes.

15:19 6 Q. And some of those are rotary core samples or different  
15:19 7 ways of taking those samples?

15:19 8 A. That's correct.

15:19 9 Q. As to all of the analysis you have done of M57B, was there  
15:19 10 a core sample that was available for you to analyze?

15:19 11 A. There was not.

15:19 12 Q. Was there any fluid samples -- another device can actually  
15:19 13 reach into the rock and actually sample the fluid itself,  
15:19 14 correct?

15:19 15 A. You can do that, yes.

15:19 16 Q. As to M57B, were fluids samples taken of that 2-foot zone?

15:20 17 A. No. They didn't take it of the 56A or the 57B either.

15:20 18 Q. Do you know Roland Chemali?

15:20 19 A. Yes.

15:20 20 Q. He works at Halliburton, correct?

15:20 21 A. Yes.

15:20 22 Q. He is the chief petrophysicist for Halliburton's  
15:20 23 Sperry-Sun division, correct?

15:20 24 A. That's correct.

15:20 25 Q. He was also the president of the Society of

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15:20 1 Petrophysicists and Well Log Analysts, correct?

15:20 2 A. I think he still is.

15:20 3 Q. Perhaps he still is.

15:20 4 Did you read Mr. Chemali's fact deposition in this  
15:20 5 case?

15:20 6 A. I think I did, yes.

15:20 7 Q. Do you recall him testifying that without a physical  
15:20 8 sample, a petrophysicist cannot give a yes-or-no answer as to  
15:20 9 whether a zone is hydrocarbon-bearing or not?

15:20 10 A. A petrophysicist gives his analysis and assumptions that  
15:20 11 went into the analysis and his conclusion about what the  
15:20 12 calculations are.

15:20 13 Q. Okay. When a petrophysicist does those things, as you  
15:20 14 have done here, given your analysis, your assumptions, and your  
15:20 15 conclusions, do you agree that without a physical sample you  
15:21 16 cannot give a yes-or-no answer as to whether a zone is a  
15:21 17 hydrocarbon-bearing zone?

15:21 18 A. I think that's why you do a range of estimates, as I have  
15:21 19 done, in order to try to determine that.

15:21 20 Q. Okay. But my question is --

15:21 21 A. Yeah. It's not a yes or no there.

15:21 22 Q. Okay. So the answer to my question is you cannot give a  
15:21 23 yes-or-no answer if you don't have -- in the absence of a  
15:21 24 physical sample, correct?

15:21 25 A. I'm not sure a physical sample makes it a yes or no

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15:21 1 either, but it's . . .

15:21 2 Q. Understood.

15:21 3 A. You can calibrate porosity.

15:21 4 Q. Are you familiar with uncertainty analysis?

15:21 5 A. Of course.

15:21 6 Q. Does your group do uncertainty analysis?

15:21 7 A. We do.

15:21 8 Q. Did you do any uncertainty analysis in this case, that is,  
15:21 9 to determine the level of uncertainty to apply to the opinions  
15:21 10 that you have expressed in your report and here today?

15:21 11 A. I tried to demonstrate a range of answers to give the  
15:21 12 reader of my report a feel for the uncertainty in that with  
15:22 13 different assumptions.

15:22 14 Q. Are you able to articulate what that range of uncertainty  
15:22 15 is with respect to the opinions that you have expressed?

15:22 16 A. No. I have shown the range of my answers.

15:22 17 Q. So if I were to ask if you have 10 percent, 15 percent,  
15:22 18 25 percent uncertainty as to whether your numbers -- plus or  
15:22 19 minus, where you came out, can you do that?

15:22 20 A. I've not done a formal uncertainty in that fashion.

15:22 21 Q. We talked about Archie's equation and then a variety of  
15:22 22 other models or methodologies. I would just like to very  
15:22 23 briefly show the Court that equation.

15:22 24 MR. REGAN: D-4651. D-4651.

25

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15:22 1 BY MR. REGAN:

15:22 2 Q. Again, Archie's equation is one of the models or  
15:22 3 methodologies that's used by petrophysicists to reach -- to do  
15:22 4 analysis and reach conclusions, correct?

15:22 5 A. Correct.

15:22 6 Q. And I have the equation over here. It's actually solving  
15:23 7 for water saturation, correct?

15:23 8 A. That's correct.

15:23 9 Q. Archie's equation actually is a component of this formula  
15:23 10 that we have put up on the screen, correct?

15:23 11 A. Archie's equation?

15:23 12 Q. Yes.

15:23 13 A. That is Archie's equation.

15:23 14 Q. That's a complete view of it. Okay.

15:23 15 Are you familiar with the Humble Oil equation?

15:23 16 A. Yeah.

15:23 17 Q. A little bit different than Archie's?

15:23 18 A. Little bit different.

15:23 19 Q. Right. Used in different areas?

15:23 20 A. Yeah. It's an old equation; but, yeah, it's used.

15:23 21 Q. I can go through each one. But based on your professional  
15:23 22 opinion, Dr. Strickland, have I correctly indicated which of  
15:23 23 these variables are assumptions that you have to make as a  
15:23 24 petrophysicist when you are using the model of Archie's  
15:23 25 equation to then determine water saturation? Have I done a

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15:23 1 correct articulation of that on D-4651?

15:23 2 A. Not as a general statement, no.

15:23 3 Q. I haven't?

15:23 4 A. No.

15:23 5 Q. So in terms of these parameters, which ones would you say  
15:23 6 in the first five are not assumptions, in your view?

15:24 7 A. Well, if you have a piece of the rock, you can measure  
15:24 8 these.

15:24 9 Q. Okay.

15:24 10 A. So they don't become assumptions then.

15:24 11 Q. Let me be more clear then. In this situation, in your  
15:24 12 work, do you have a piece of rock?

15:24 13 A. No, I do not.

15:24 14 Q. Let's start there. If you don't have a piece of the rock  
15:24 15 and all you have is the wireline and other data, have I  
15:24 16 correctly indicated which variables in Archie's equation are  
15:24 17 assumptions?

15:24 18 A. I didn't assume those. I used the BP values.

15:24 19 Q. Do you know how BP derived them?

15:24 20 A. I think so.

15:24 21 Q. Do you think they were assumptions by BP?

15:24 22 A. No. I think they were physical measurements on an analog  
15:24 23 well, the Isabella well, where they measured A, M, and N. The  
15:24 24 porosity is a calculation from the logs. The resistivity of  
15:24 25 the water, I believe, BP used came from a regional study.

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15:24 1 Q. So I'll try one more time, and I will move on.

15:24 2 With respect to Macondo -- with respect to what those  
15:25 3 values are for Macondo, would you agree that based on what you  
15:25 4 looked at for BP, BP used an assumed number for Macondo based  
15:25 5 on information from offset wells like Isabella, based on  
15:25 6 information from regional data like Gulf of Mexico, etc.?

15:25 7 A. They used values from an analog well. I wouldn't have  
15:25 8 called that an assumption. It's values from an analog well,  
15:25 9 which is better than an assumption.

15:25 10 Q. With respect to some of the work, you used  
15:25 11 Ms. Skripnikova's inputs for formation water resistivity,  
15:25 12 correct?

15:25 13 A. Yes.

15:25 14 Q. You also said you used some Schlumberger inputs, correct?

15:25 15 A. Correct.

15:25 16 Q. You calculated in terms of -- I'm going to get to your  
15:25 17 calculation in a minute -- try to do this quickly. But you  
15:25 18 calculated a porosity figure based on a corrected density curve  
15:25 19 of fluid density, 70 percent base oil and 30 percent water,  
15:25 20 correct?

15:25 21 A. Correct.

15:25 22 Q. Did your assessment of those numbers require  
15:26 23 interpretation or judgment?

15:26 24 A. Well, I read the 70/30 in one of the -- in the daily  
15:26 25 drilling reports, the 70/30 mix for the oil-based mud. I used



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15:26 1 the high resolution density curve out of the triple combo.

15:26 2 Q. Let me ask --

15:26 3 A. I'm not sure I follow your question then.

15:26 4 Q. Let me ask a more simple question. Generally speaking, in  
15:26 5 doing what a petrophysicist does, you have to exercise judgment  
15:26 6 as you're looking at wireline data and other data to then do  
15:26 7 interpretations to then reach conclusions, correct?

15:26 8 A. Well, there's judgment in every engineering calculation.

15:26 9 Q. Would you agree that two different petrophysicists could  
15:27 10 look at the same baseline inputs and reach different  
15:27 11 professional judgments?

15:27 12 A. They can. It's a little odd, some of the things that have  
15:27 13 happened here, but it can happen.

15:27 14 Q. So is it your opinion that no petrophysicist could reach a  
15:27 15 different judgment than the one you did in this case with  
15:27 16 respect to M57B?

15:27 17 A. Well, I think all the petrophysicists that have worked on  
15:27 18 this all have the same kind of water saturation that I have  
15:27 19 displayed and shown.

15:27 20 Q. But my question is: Do you think that no reasonable  
15:27 21 petrophysicist could disagree with what you have done?

15:27 22 A. I guess anybody is free to say what they want to say.

15:27 23 Q. So the answer is you do not believe any other  
15:27 24 petrophysicist could reasonably reach a different opinion?

15:27 25 A. Well, the opinion is about hydrocarbon-bearing, I think,

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15:27 1 not about what the water saturation is.

15:27 2 Q. Okay. I will try one more time and move on.

15:28 3 With respect to your opinions about whether something  
15:28 4 is a hydrocarbon-bearing zone, is it your view that no  
15:28 5 reasonable petrophysicist could reach an opinion different than  
15:28 6 yours?

15:28 7 A. Well, I think you have got to define what  
15:28 8 "hydrocarbon-bearing" means. I know the work of Mr. Colson and  
15:28 9 Mr. Lee. They seem to use a different concept than I do for  
15:28 10 hydrocarbon-bearing.

15:28 11 Q. I'll move on, and maybe we will come back to this.

15:28 12 MR. REGAN: If we could come to -- just for -- to get  
15:28 13 us a sense of where we were in the well, D-4653, and I want to  
15:28 14 start with .8.

15:28 15 BY MR. REGAN:

15:28 16 Q. Now, this is a demonstrative of sands in the production  
15:28 17 interval. Do you see that, Dr. Strickland?

15:28 18 A. I do.

15:28 19 Q. I just want to do this quickly, but do you see the first  
15:28 20 sand -- we're going to go from the bottom to the top -- the  
15:28 21 first sand is the M56F sand. Do you see that?

15:28 22 A. Yeah, there are other sands, but that's the M56F on the  
15:29 23 right.

15:29 24 Q. We have created this to true vertical scale. So is it --  
15:29 25 based on your assessment, is it accurate that that sand, in

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15:29 1 terms of its height, is 21 feet high?

15:29 2 A. My review of that is not 21 feet; it's less than that.

15:29 3 But I understand the demonstrative, I'm fine with it. If you  
15:29 4 want to represent that, that's fine with me.

15:29 5 Q. You would refer to the documents; that's what you would  
15:29 6 refer to as to the numbers, right?

15:29 7 A. Yeah.

15:29 8 Q. I don't mean to quibble on this because I want to get to a  
15:29 9 different sand.

15:29 10 MR. REGAN: Let's go to 4653.7.

15:29 11 BY MR. REGAN:

15:29 12 Q. That's the M56E sand. Based on your review,  
15:29 13 Dr. Strickland, do you agree that that hydrocarbon sand was  
15:29 14 71 feet in size?

15:29 15 A. That number is about right, yes.

15:29 16 MR. REGAN: Go to the next one, which is .6.  
15:29 17 D-4653.6.

15:29 18 BY MR. REGAN:

15:29 19 Q. The next one above, M56D, 22 feet, correct?

15:30 20 A. That's about right, yes.

15:30 21 MR. REGAN: Let's go to .5.

15:30 22 BY MR. REGAN:

15:30 23 Q. M56C, that's a 2-foot sand, right?

15:30 24 A. If I were quibbling, I would say 4, but --

15:30 25 Q. I will try to go through these quickly, and if it becomes

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15:30 1 material, we can come back to it.

15:30 2 MR. REGAN: Let's go to .4.

15:30 3 BY MR. REGAN:

15:30 4 Q. 465 to .4. The next sand, M56B. That's M56B, not 57B. I  
15:30 5 have it as 14 feet.

15:30 6 If we go to the next one, .3, another 2 1/2-foot  
15:30 7 area.

15:30 8 Go to .2, M57C, 8.5 feet.

15:30 9 And then we get to the top one that you have  
15:30 10 identified as the uppermost hydrocarbon-bearing zone, 2 feet.

15:31 11 Is that right?

15:31 12 A. That's fair.

15:31 13 Q. On this chart we have these zones going all the way across  
15:31 14 the page. Do you see that?

15:31 15 A. I do.

15:31 16 Q. Did you do anything to assess the actual size or  
15:31 17 conductivity or whether it was connected to a channel, the  
15:31 18 volume of M57B?

15:31 19 A. Just I read what other people had opined about that.

15:31 20 Q. You yourself did not do any independent analysis to  
15:31 21 determine whether M57B was a large interconnected zone or a  
15:31 22 small pocket?

15:31 23 A. I have no independent opinion on that.

15:31 24 Q. Now, I want to get to, then, the question of definition.  
15:31 25 You started your examination looking at the C.F.R.

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15:31 1 MR. REGAN: So let's put up TREN-5485.2.

15:31 2 BY MR. REGAN:

15:31 3 Q. And you remember seeing this definition right here under  
15:31 4 E?

15:31 5 A. Yes, sir.

15:32 6 Q. I want to focus on these words in the regulation:

15:32 7 "500 feet above 'the uppermost hydrocarbon-bearing zone'."

15:32 8 I want to use those as if they were all initially  
15:32 9 capitalized. That's the phrase I want to ask a lot of  
15:32 10 questions about: uppermost hydrocarbon-bearing zone.

15:32 11 When you first started this project, you looked for a  
15:32 12 definition of that term, correct?

15:32 13 A. I did.

15:32 14 Q. Did you find one?

15:32 15 A. A definition of the term "hydrocarbon-bearing zone," yes.

15:32 16 Q. Did you find one?

15:32 17 A. I did not.

15:32 18 Q. Is there a definition of that term in the MMS regulations?

15:32 19 A. Not that I found.

15:32 20 Q. Is there a definition of that term for the Society of  
15:32 21 Petroleum Engineers?

15:32 22 A. Not that I found.

15:32 23 Q. Society of Professional Well Log Analysts, do they have a  
15:32 24 definition?

15:32 25 A. I don't think so.

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15:32 1 Q. API, do they have a definition?

15:32 2 A. I don't think so.

15:32 3 Q. How about in your classroom? Did you have a definition in  
15:32 4 your classroom of that term?

15:32 5 A. I don't know that I have ever used that term.

15:32 6 Q. Before testifying in this case, correct?

15:32 7 A. Yes, I have never seen it before until I saw this case.

15:33 8 Q. So you would agree, to your knowledge in your review,  
15:33 9 there's no industry-adopted definition of this phrase,  
15:33 10 "hydrocarbon-bearing zone," as used in this regulation,  
15:33 11 correct?

15:33 12 A. That was my review. I thought I was left with just the  
15:33 13 plain English meaning of those words.

15:33 14 Q. So after not finding a definition, you created one,  
15:33 15 correct?

15:33 16 A. I tried to give my opinion on what I thought the plain  
15:33 17 English meaning of those words in the context of this  
15:33 18 situation.

15:33 19 Q. I want to go to your definition. TREX-60875.8.4.

15:33 20 Have I put on the screen, Dr. Strickland, your  
15:33 21 definition of that term, "hydrocarbon-bearing zone"?

15:33 22 A. Yes. And the explanation of it goes for about three  
15:33 23 paragraphs here, but that's the one sentence.

15:33 24 Q. But I just want to make sure -- this is your definition,  
15:33 25 correct?

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15:33 1 A. Yes.

15:33 2 Q. You came up with it after being retained in this case,  
15:34 3 correct?

15:34 4 A. Correct.

15:34 5 Q. You came up with it in August of 2011, correct?

15:34 6 A. Well, that time frame, yes.

15:34 7 Q. Now, I want to go through this definition, if we could.

15:34 8 If we start with the first sentence there, you say:

15:34 9 "A hydrocarbon-bearing zone is a defined interval that contains  
15:34 10 oil and/or gas at sufficient level . . ." -- if we stop there.

15:34 11 Did you ever define what that level is?

15:34 12 A. I did.

15:34 13 Q. What is it?

15:34 14 A. I chose 30 percent.

15:34 15 Q. So if I was to clarify your definition, I could say  
15:34 16 "sufficient level, i.e., 30 percent"?

15:34 17 A. For gas flow, yes.

15:34 18 Q. What about for oil flow?

15:34 19 A. I didn't bring forward a number for that.

15:34 20 Q. Well, did you ever reach an opinion on what "sufficient  
15:35 21 level" meant for oil flow as used in the term  
15:35 22 "hydrocarbon-bearing zone"?

15:35 23 A. I did it for gas, but I didn't do it for oil.

15:35 24 Q. Okay. You then say: ". . . such that oil and/or gas will  
15:35 25 flow out of the zone and into a wellbore." If I could stop

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15:35 1 there.

15:35 2 Now, at your deposition you added another condition  
15:35 3 there, correct?

15:35 4 A. I think the practicality of it, not in a definition but in  
15:35 5 the application of this and the practicality of it, it's got to  
15:35 6 be a zone that is meaningful in the context of what you are  
15:35 7 doing.

15:35 8 Q. Meaningful to you means that it has to flow into a  
15:35 9 wellbore in enough quantity to affect wellbore operations,  
15:35 10 correct?

15:35 11 A. Yeah. Otherwise it's just kind of a throw-away zone.

15:36 12 Q. With respect to "sufficient level," does that require a  
15:36 13 determination of porosity and permeability?

15:36 14 A. And saturation.

15:36 15 Q. Okay. So other than the 30 percent for gas, do you have  
15:36 16 any criteria for what porosity, permeability, or saturation  
15:36 17 should be applied in your definition?

15:36 18 A. No. I try not to make this a checklist. I tried to make  
15:36 19 it as a general statement and look at the specific  
15:36 20 circumstances that we have.

15:36 21 Q. Finally, is there any notion of reasonableness with  
15:36 22 respect to this definition that you have; i.e., is there a  
15:36 23 standard saying -- is it an interval that the operator  
15:37 24 reasonably believes contains oil and/or gas at a sufficient  
15:37 25 level?



## RICHARD STRICKLAND - CROSS

15:37 1 A. I did not use those words.

15:37 2 Q. Is there any reasonableness standard in your definition?

15:37 3 A. I think the issue is, is the zone -- is it a defined  
15:37 4 interval, like the M57B is a defined interval. Does it contain  
15:37 5 the gas? Yes.

15:37 6 Is it at a level such that if the pressure comes  
15:37 7 down, it will flow? And I think the answer to all those for  
15:37 8 the 57B is yes.

15:37 9 Q. Go to the ELMO. I will mark this as D-4673.

15:37 10 Is it correct, then, that with respect to your  
15:37 11 definition, a "hydrocarbon-bearing zone" is a defined interval  
15:37 12 that contains oil or gas at a sufficient level, i.e, 30 percent  
15:38 13 for gas water saturation -- should I put that in there, "water  
15:38 14 saturation"?

15:38 15 A. I wouldn't put it in there. 30 percent -- that's  
15:38 16 30 percent gas saturation. I wouldn't put it in the  
15:38 17 definition.

15:38 18 Q. A blank for oil, such that the oil and gas will flow out  
15:38 19 of the zone and into a wellbore in enough quantity to affect  
15:38 20 wellbore operations, correct?

15:38 21 A. Again, I didn't put that in the sentence. I think that's  
15:38 22 trying to make that implied in the practicality of using this,  
15:38 23 yes.

15:38 24 Q. You didn't quantify the volume for M57B that would need to  
15:38 25 flow into the wellbore at Macondo to affect wellbore

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15:38 1 operations. You didn't determine that, did you?

15:38 2 A. No. I tested my calculations and flow. And it flowed at,  
15:38 3 by my calculations, hundreds of mcf to a million mcf per day.

15:38 4 Q. Where did you do those calculations?

15:39 5 A. I did those as part of my work on this project.

15:39 6 Q. So it's your opinion that the M57B actually would flow?

15:39 7 What was the pressure at which it flowed?

15:39 8 A. I'm sorry?

15:39 9 Q. What was the pressure at which M57B flowed, in your  
15:39 10 calculation?

15:39 11 A. Well, the reservoir pressure was 12,800 and, I think, 71.

15:39 12 Q. What's the Delta P? What's the differential pressure?

15:39 13 How much lower was the pressure in the wellbore that caused the  
15:39 14 flow that you found in your calculations?

15:39 15 A. I had that number when I was -- as part of my rebuttal  
15:39 16 report. I had those numbers. So it was a number like -- the  
15:39 17 Delta P was on the order of hundreds of psi.

15:39 18 Q. I don't want to ask you about your rebuttal report. I'm  
15:40 19 asking, with respect to your original report, did you have any  
15:40 20 opinion that M57B actually would flow?

15:40 21 A. Well, I did calculations to see that it would flow at some  
15:40 22 kind of quantity that makes sense, and that same work wound up  
15:40 23 in that rebuttal report. But --

15:40 24 Q. It's correct, is it not -- I'm sorry, were you finished?

15:40 25 A. So, yes, I did it as part of the primary part of this

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1 work, and the Delta P was -- oh, I think it was in the hundreds  
2 of psi.

3 Q. At the time of your report and deposition, you did not  
4 have an opinion as to whether M57B did, in fact, interfere with  
5 well operations, correct?

6 A. That is correct.

7 Q. Without an opinion as to whether M57B interfered with  
8 wellbore operations, you were not able to say whether or not  
9 M57B was a hydrocarbon-bearing zone under your definition?

10 A. No, I disagree. I said that it needs to be able to flow  
11 if you have a pressure drop on it. And that's what -- the zone  
12 is still a hydrocarbon-bearing zone whether it ever flows or  
13 not.

14 Q. This is the definition you put in your report, the one we  
15 have marked as --

16 A. No, you're adding stuff to it. The definition in my  
17 report is as stated.

18 Q. I guess the record will speak for itself with respect to  
19 it.

20 At the time of your deposition, you were not aware of  
21 any indication that the M57B had any effect on well operations,  
22 that is, caused a kick or did anything else with respect to the  
23 cement job, correct?

24 A. I do not have an opinion on that.

25 MR. REGAN: Let's go to D-4363.

## RICHARD STRICKLAND - CROSS

15:41 1 BY MR. REGAN:

15:41 2 Q. I want to ask you about the time period between April 3  
15:41 3 and April 19, and I think you testified earlier that you  
15:41 4 recognized that as the time period when there was open hole in  
15:41 5 the final interval. Do you recall that testimony?

15:41 6 A. Yes.

15:41 7 Q. I'm going to go to that time period here. So at that time  
15:42 8 period from April 3 to approximately April -- late April 18,  
15:42 9 April 19, the well had been drilled to TD, but there was no  
15:42 10 production casing, correct?

15:42 11 A. That's correct.

15:42 12 Q. So this area down here, from the 9 7/8 shoe down to the  
15:42 13 bottom, was open hole, correct?

15:42 14 A. Yes.

15:42 15 Q. Did you do anything to assess whether or not the pressure  
15:42 16 you calculated for M57B was higher or lower than the measured  
15:42 17 pressures that were taken during the wireline operations?

15:42 18 A. I calculated the M57B pressure from both the Geo Taps  
15:42 19 taken during the drilling process and looked also at the  
15:42 20 wireline pressure --

15:42 21 Q. Right.

15:42 22 A. -- measurements too.

15:42 23 Q. Let me be more clear. I'm not asking your opinion about  
15:42 24 what M57B was as pressure. I'm asking your opinion as to  
15:43 25 whether the pressures in the well were always higher than or

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15:43 1 lower than M57B when this was open hole.

15:43 2 A. At times, they were higher; and many times, they were  
15:43 3 lower.

15:43 4 Q. The times they were lower, there was never a kick from  
15:43 5 M57B during that time period, was there?

15:43 6 A. The times they were lower, there was a terrible kick, but  
15:43 7 where it was from is another question.

15:43 8 Q. I'm asking about the time when you had open hole, no  
15:43 9 production casing, on April 3 to April 19. Do you have my  
15:43 10 question?

15:43 11 A. I got you now.

15:43 12 Q. You know from your analysis that the pressures in the well  
15:43 13 got below the pressure of the zone, correct?

15:43 14 A. That's correct.

15:43 15 Q. If we look at your definition -- we can put it up one more  
15:43 16 time.

15:43 17 MR. REGAN: ELMO, please, Donnie.

15:43 18 BY MR. REGAN:

15:43 19 Q. Your definition in your expert report is that a  
15:43 20 hydrocarbon-bearing zone is a "defined interval that contains  
15:43 21 oil and/or gas at a sufficient level" -- and we have the  
15:43 22 additions, 30 percent for gas, a blank for oil -- "such that  
15:43 23 oil and gas will flow" -- will flow -- "out of the zone and  
15:44 24 into a wellbore in enough quantity to affect wellbore  
15:44 25 operations when the pressure in the wellbore is reduced below

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15:44 1 the pressure in the zone."

15:44 2 Do you see that there?

15:44 3 A. Well, I see what you read, yes.

15:44 4 Q. You know that the pressure got below the pressure you  
15:44 5 calculated for M57B, correct?

15:44 6 A. Yes.

15:44 7 MR. REGAN: Back to the other one, Donnie.

15:44 8 BY MR. REGAN:

15:44 9 Q. You know that, yes?

15:44 10 A. Yes.

15:44 11 Q. There was never a kick from that zone, was there?

15:44 12 A. Well, I don't think anybody knows that.

15:44 13 Q. Did you study the daily drilling reports?

15:44 14 A. Yes.

15:44 15 Q. Did you see any kicks that took place between April 9 and  
15:44 16 April 19?

15:44 17 A. No.

15:44 18 Q. You were asked about the Halliburton mud loggers. You  
15:44 19 understand that they do what is called a Zone of Interest  
15:44 20 Report, correct?

15:44 21 A. I do.

15:44 22 Q. In preparing your report, you talked to cement experts,  
15:44 23 correct?

15:44 24 A. I did.

15:44 25 Q. You talked to some other people -- unidentified people,

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15:44 1 and I'm not asking you to identify them -- but did you talk to  
15:44 2 any of the Halliburton mud loggers, if you know?

15:45 3 A. No, I don't think so.

15:45 4 Q. You know they prepared Zone of Interest reports, correct?

15:45 5 A. Yes.

15:45 6 Q. You know that no Zone of Interest Report was prepared by  
15:45 7 the Halliburton mud loggers with respect to the M57B area,  
15:45 8 correct?

15:45 9 A. That's correct.

15:45 10 Q. Now, mud logger, actually, they log the mud, correct?

15:45 11 A. Yes.

15:45 12 Q. Somebody stands at the shale shaker and they take the  
15:45 13 cuttings as they come up?

15:45 14 A. Right.

15:45 15 Q. They take them into a lab and they put them under  
15:45 16 fluorescent lights and look for signs of hydrocarbons, correct?

15:45 17 A. Yes. We call that a mud logger.

15:45 18 Q. Right.

15:45 19 Mr. Keith was here, and he testified to his process  
15:45 20 in going through that and the characteristics as to how he  
15:45 21 would describe mud.

15:45 22 Did you look at the End of Well Report that was  
15:45 23 prepared by the Halliburton mud loggers concerning the M57B  
15:45 24 zone?

15:45 25 A. Not to quibble with you, but it's how they characterize

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15:45 1 cuttings, not mud.

15:45 2 Q. I'm sorry. Feel free to correct me.

15:46 3 Let me show you the End of Well Report, TREX-611.

15:46 4 MR. REGAN: I would like to go to page 18, if I  
15:46 5 could, Donnie.

15:46 6 BY MR. REGAN:

15:46 7 Q. M57B zone, we have 17,467; is that right?

15:46 8 A. Right.

15:46 9 Q. TREX-611.18. Have you seen this End of Well Report,  
15:46 10 Dr. Strickland?

15:46 11 A. Yeah. I can't read that, though.

15:46 12 Q. We will make it bigger for you.

15:46 13 MR. REGAN: Donnie, if we could bring up this area  
15:46 14 right here, 17,400 to 17,530, please.

15:46 15 BY MR. REGAN:

15:46 16 Q. Is that a little easier to read?

15:46 17 A. Yes, thank you.

15:46 18 Q. M57B would be this zone right here, correct?

15:46 19 A. M57B would be contained in that vertical interval.

15:46 20 Q. Better said. Better said.

15:46 21 This is a document that's prepared by the mud loggers  
15:46 22 based on their analysis of the cuttings as they come up,  
15:46 23 correct?

15:46 24 A. Yes.

15:46 25 Q. Do you see a term "Fluorescence: None"?



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15:46 1 A. Yes.

15:46 2 Q. That means that, based on the assessments of the  
15:47 3 Halliburton mud loggers, for that interval, there was no  
15:47 4 fluorescence, correct?

15:47 5 A. Correct.

15:47 6 Q. That's a sign of hydrocarbons, correct?

15:47 7 A. Well, it's a sign of usually the heavy hydrocarbons, the  
15:47 8 high-molecular weight hydrocarbons, higher.

15:47 9 Q. Did you see any indications of methane in the gas  
15:47 10 chromatograph while the well was being drilled past M57B?

15:47 11 A. You mean an increase in methane, not talking about  
15:47 12 background gas --

15:47 13 Q. Right. That's where I was going.

15:47 14 A. -- is what you meant.

15:47 15 But there is an indication of methane gas. What you  
15:47 16 are looking for is an increase in methane.

15:47 17 Q. Did you see any increase in methane during the M57B  
15:47 18 interval?

15:47 19 A. I did not.

15:47 20 Q. I didn't hear you.

15:47 21 A. I did not.

15:47 22 Q. Did you see any evidence of ethane, propane, butane,  
15:47 23 pentane on those charts, charts that are designed to track  
15:47 24 those gases while wells are being drilled for that interval?

15:47 25 A. I did not.

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15:48 1 Q. Did you compare M57B in terms of its crossover, its  
15:48 2 gamma -- the gamma readings on it and other readings, as  
15:48 3 compared to those other sands, like M56E, M56F? Did you  
15:48 4 compare those?

15:48 5 A. I did.

15:48 6 Q. Which of those zones, in your opinion, Dr. Strickland, is  
15:48 7 the weakest hydrocarbon-bearing zone, using your definition?

15:48 8 A. The weakest?

15:48 9 Q. The weakest. The least likely to be a hydrocarbon-bearing  
15:48 10 zone. If you were to line them all up with all of the  
15:48 11 charts -- and we can put them up, but if you were to line them  
15:48 12 all up top to bottom, which one to you as a petrophysicist  
15:48 13 would have the worst signature -- the smallest signature as  
15:48 14 being a hydrocarbon-bearing zone?

15:48 15 A. You know, the big pay zones are real clear, and they're  
15:48 16 sampled, for one thing.

15:49 17 There's a number of physical characteristics. The  
15:49 18 thinnest of those -- the thinnest sand is the M57B. It's a  
15:49 19 half-foot thinner than the M56A that BP --

15:49 20 Q. So M57B is a half-foot thinner than M56A?

15:49 21 A. Yes.

15:49 22 Q. Did I say that correctly? One is 2 1/2 feet; one is  
15:49 23 2 feet. Correct?

15:49 24 A. Yes.

15:49 25 Q. They have dramatically different signatures on the triple

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15:49 1 combo log, correct?

15:49 2 A. The gamma ray is not quite as extruded to the left as the  
15:49 3 M56A is, and the triple combo log shows resistivities less than  
15:49 4 the M56A.

15:49 5 Q. I think it would be easier -- I think this will be the  
15:49 6 only one I will put up.

15:49 7 MR. REGAN: D-4666.

15:50 8 BY MR. REGAN:

15:50 9 Q. Again, we are comparing M57B, the thinnest, as you said,  
15:50 10 with M56A. And for purposes of my question, one is 2 1/2 feet;  
15:50 11 one is 2 feet. Right?

15:50 12 A. Yes.

15:50 13 Q. The 2-foot zone is M57B. The M56A, which was determined  
15:50 14 as the upper hydrocarbon-bearing zone by Ms. Skripnikova,  
15:50 15 that's 2 1/2 feet, correct?

15:50 16 A. Correct.

15:50 17 Q. Which of those zones has a stronger signature with respect  
15:50 18 to the gamma ray analysis?

15:50 19 A. The 56A has a slightly stronger signature.

15:50 20 Q. Which has a stronger signature in terms of the  
15:50 21 resistivity?

15:50 22 A. The 56A has a stronger resistivity signature.

15:50 23 Q. By orders of magnitude, correct?

15:50 24 A. Orders of magnitude? No.

15:50 25 Q. .2 to 20? You know how to read these charts, right?

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15:50 1 Wouldn't that be orders of magnitude in terms of difference?

15:50 2 A. No. Those aren't -- no, you have to cross the big black  
15:50 3 vertical lines to get orders of magnitude.

15:51 4 Q. So almost an order of magnitude. Would you give me that?

15:51 5 A. The difference between lawyers and petrophysicists is we  
15:51 6 do numbers.

15:51 7 Q. I'll keep going.

15:51 8 THE COURT: Do you want to define that?

15:51 9 MR. REGAN: I'm going to leave that one -- I'll leave  
15:51 10 that one alone.

15:51 11 BY MR. REGAN:

15:51 12 Q. At least as I look at this chart, M56A seems like it has a  
15:51 13 much bigger thumb heading to the right than M57B. Will you  
15:51 14 give me that?

15:51 15 A. On the 2-foot vertical resolution, it doesn't -- it's a  
15:51 16 lot different on the other resolutions.

15:51 17 Q. On the resolution of the chart that we have in front of  
15:51 18 you --

15:51 19 A. That's correct.

15:51 20 Q. -- with respect to crossover, M57B versus M56A, which has  
15:51 21 a more pronounced crossover?

15:51 22 A. The 56A crosses over more than the 57B.

15:51 23 Q. Any doubt in your mind that M56A is a hydrocarbon-bearing  
15:51 24 zone?

15:51 25 A. I don't think so, no.

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15:51 1 MR. REGAN: You can take that down, Donnie.

15:51 2 BY MR. REGAN:

15:51 3 Q. You talked about a number of different techniques that are  
15:52 4 used. Just to confirm, there is what's called a CMR log, which  
15:52 5 is a combinable magnetic resonance log?

15:52 6 A. Correct.

15:52 7 Q. Calculates permeability, correct?

15:52 8 A. No, it doesn't calculate permeability. It measures -- it  
15:52 9 makes measurements from which that data is used to calculate  
15:52 10 from an empirical correlation values for permeability which are  
15:52 11 then plotted on the log.

15:52 12 Q. So information is gathered; it goes through a series of  
15:52 13 algorithms that then, at some point, come out in a line that  
15:52 14 people use as an approximation or indication of permeability?

15:52 15 A. That's correct.

15:52 16 Q. Did you look at that?

15:52 17 A. I did.

15:52 18 Q. You didn't analyze the CMR in conducting your analysis of  
15:52 19 whether M57B was hydrocarbon-bearing, did you?

15:52 20 A. No, I looked at the M -- excuse me.

15:52 21 I looked at the CMR, but it was -- my report was  
15:53 22 already done.

15:53 23 Q. Yes.

15:53 24 A. So I did not try to include it.

15:53 25 Q. Just to be clear, for the report that we have in evidence,

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15:53 1 you didn't rely on that log, correct?

15:53 2 A. That's correct. I relied on the BP calculation of  
15:53 3 permeability from the core samples in the Bly to the M57B.

15:53 4 Q. You talked about Schlumberger having additional logs, one  
15:53 5 being called ELAN and one being laminated sands.

15:53 6 Actually, let me ask you, did you mention ELAN on  
15:53 7 your direct exam?

15:53 8 A. No, I never found the ELAN log. There's this one curve,  
15:53 9 but I harangued my client for a long time looking for the real  
15:53 10 ELAN.

15:53 11 Q. You were asking for it and you couldn't find it?

15:53 12 A. That's right.

15:53 13 Q. You know that BP had the ELAN information in the July  
15:53 14 memoranda that you looked at, right?

15:53 15 A. They had that one curve that came out of the laminated  
15:53 16 sand analysis.

15:53 17 Q. Right, right.

15:53 18 Laminated sands is interspersions of sandstone and  
15:53 19 shale in a very small area, correct? Is that fair?

15:53 20 A. You mean a small vertical --

15:54 21 Q. Small vertical.

15:54 22 A. There's thin layers of sand and shale.

15:54 23 Q. Is it your expert opinion that M57B is a laminated sand?

15:54 24 A. No. I thought it was a shaly sand but not necessarily a  
15:54 25 laminated sand.

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15:54 1 Q. But you rely on the laminated sands analysis from  
15:54 2 Schlumberger as part of your expert report, correct?

15:54 3 A. I brought out the calculation that Schlumberger did for  
15:54 4 the M57B. They did it for lots of zones, but I put that one  
15:54 5 up, yeah.

15:54 6 Q. You put it on the chart that we saw with your numbers --  
15:54 7 the number plot of the different percentages, correct?

15:54 8 A. My water saturation calculations were Archie, Simandoux,  
15:54 9 modified Simandoux, and Indonesian. Is that what you are  
15:54 10 discussing?

15:54 11 Q. Yeah, let me put it up.

15:54 12 MR. REGAN: D-8244.

15:54 13 BY MR. REGAN:

15:54 14 Q. This document?

15:54 15 A. Yeah.

15:54 16 Q. So 40 percent is your Archie calculation, right? We  
15:55 17 talked about that already?

15:55 18 A. Yes.

15:55 19 Q. Which one is the laminated sands Schlumberger number?

15:55 20 A. It's not on here.

15:55 21 Q. I thought it was --

15:55 22 MR. REGAN: Let's go to D-8245. There we go.

15:55 23 BY MR. REGAN:

15:55 24 Q. Is it on that D-8245, Dr. Strickland?

15:55 25 A. No.

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15:55 1 Q. Do you know what the number was in the laminated sands  
15:55 2 analysis?

15:55 3 A. Yeah. I think it's 36, is my recollection.

15:55 4 Q. It's my mistake. I thought that was one of the numbers  
15:55 5 that you had on there, that 36 number.

15:55 6 The Schlumberger ELAN tool, that also did a water  
15:55 7 saturation figure, correct?

15:55 8 A. I'm not sure of that at all. I'd be -- the information  
15:55 9 there is -- comes from the laminated sand analysis  
15:55 10 calculations. There's two water saturations calculations done  
15:55 11 in the LSA, laminated sand analysis, and I'm not -- it's not  
15:56 12 clear to me at all how that information winds up in the  
15:56 13 displayed column that is labeled "ELAN."

15:56 14 Q. Did you know that the ELAN interpreted the water  
15:56 15 saturation for M57B to be 90 percent, that is, 10 percent  
15:56 16 hydrocarbon, 90 percent water?

15:56 17 A. I saw that in the -- I think it's the -- in the technical  
15:56 18 memorandum.

15:56 19 Q. Did you put that 90 percent water saturation on your chart  
15:56 20 that we saw in your direct exam, D-8245?

15:56 21 A. No. I'm showing what I calculated, the methods I used to  
15:56 22 calculate it.

15:56 23 Q. In terms of determining the uncertainty analysis of this  
15:56 24 zone, do you think it's fair to include the ELAN calculation in  
15:56 25 evaluating where in the range of uncertainty the water



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15:56 1 saturation might be for M57B?

15:57 2 A. Well, the reason -- I didn't for a lot of reasons, but  
15:57 3 principally the issue is I never found a real ELAN log. I had  
15:57 4 this one curve, and I kept asking for -- usually, these things  
15:57 5 are a big report. I never found one, so I didn't -- I was very  
15:57 6 unsure of what that was about.

15:57 7 MR. REGAN: Let's pull up TREN-63070N.1.1.

15:57 8 BY MR. REGAN:

15:57 9 Q. And forgive me because it's one more log, but --

15:57 10 A. We like logs.

15:57 11 Q. TREN-63730N.1.1, do you recall ever seeing this document,  
15:57 12 Dr. Strickland?

15:57 13 A. Well, that is by far the best representation I have ever  
15:57 14 seen of it.

15:57 15 Q. Okay. What in this great representation is blue on this  
15:58 16 ELAN log? What does blue stand for?

15:58 17 A. Typically blue stands for water.

15:58 18 Q. What's this little green?

15:58 19 A. I'm sorry, where are you pointing?

15:58 20 Q. I'm sorry --

15:58 21 A. I was looking down here.

15:58 22 Q. Yeah, I zoomed in.

15:58 23 Let me just say, this is the M57B area right here on  
15:58 24 the ELAN. The big triangle in blue, that's water, right?

15:58 25 A. Yes.

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15:58 1 Q. The little green, that's going to be oil -- hydrocarbon,  
15:58 2 as it's calculated here, right?

15:58 3 A. Hydrocarbon, yeah.

15:58 4 Q. So this ELAN analysis would have the water saturation for  
15:58 5 that zone as 90 percent water, 10 percent hydrocarbon?

15:58 6 A. I'm trying to figure out -- surely there's a saturation  
15:58 7 line on here somewhere. I can't tell from that right-hand side  
15:59 8 one, but surely there is a saturation curve on here also.

15:59 9 Yeah, here it is in the second track, I think the  
15:59 10 blue dashed line.

15:59 11 Q. Uh-huh.

15:59 12 A. I believe that's -- and that's . . .

15:59 13 Q. Right here?

15:59 14 A. I'm sorry, where are you pointing?

15:59 15 Q. Is this the blue dashed line you are referring to,  
15:59 16 Dr. Strickland?

15:59 17 A. Yes.

15:59 18 Q. Are you able to look at this ELAN and determine what the  
15:59 19 percentage of water saturation is?

15:59 20 A. Well, by the label up there, the saturation -- I will  
15:59 21 point to it with my little handy-dandy pointer too.

15:59 22 There, it says "water saturation."

15:59 23 Q. Right.

15:59 24 A. And it says zero, one, so that's zero and 100 percent.

15:59 25 And it's a blue dashed line under the word "Sw." So going down

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15:59 1 in that track and then looking at the blue dashed track, unless  
16:00 2 I'm misinterpreting that, that says this is about a -- about a  
16:00 3 10 percent water saturation.

16:00 4 Q. Is it possible that you might have it inversed?

16:00 5 A. Well, yeah, but the track says zero on the right-hand  
16:00 6 side --

16:00 7 Q. We will move on. I think there's --

16:00 8 A. -- and there's one on the left.

16:00 9 Q. -- we have analyzed this information, and we can ask them.

16:00 10 Let me now just turn last to some of your statements  
16:00 11 about some of the BP documents and BP employees. In your  
16:00 12 report you assert that Ms. Skripnikova, Galina Skripnikova,  
16:00 13 took only 27 minutes to make her interpretation as to what was  
16:00 14 the shallowest hydrocarbon-bearing zone, correct?

16:00 15 A. That's correct.

16:00 16 Q. Is that a true statement?

16:00 17 A. That's a statement I made in my report.

16:00 18 Q. Your basis for saying she took only 27 minutes is you  
16:01 19 looking at a single e-mail that she responded to, correct?

16:01 20 A. Yes.

16:01 21 Q. Then you say in your report that you believe she made a  
16:01 22 mistake, correct?

16:01 23 A. Yes.

16:01 24 Q. Then, because you assume that it was 27 minutes of work,  
16:01 25 that's the basis for you using the term that her work was

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16:01 1 superficial, incomplete, or incorrect, correct?

16:01 2 A. Well, it was certainly very quick; and then from reading  
16:01 3 her deposition, it appeared to be that's all that she looked at  
16:01 4 in making that decision. And so the deposition said, yeah, she  
16:01 5 laid out the field print and looked up and down the log, and  
16:01 6 that's the only thing that she did to come to that conclusion.

16:01 7 Q. Well, you're aware that Ms. Skripnikova testified in the  
16:01 8 deposition you just referred to that she also looked at data  
16:01 9 from the mud log?

16:01 10 A. Yes, that's right. You are correct. The mud log, yes.

16:01 11 Q. In your report where you said she solely looked at the  
16:02 12 printout of the triple combo log, is that correct or incorrect?

16:02 13 A. No, that's incorrect. It should also say the mud log on  
16:02 14 there, yes.

16:02 15 Q. That paragraph in your report where you say she solely  
16:02 16 looked -- and let's put it up. Pardon me for the flipping of  
16:02 17 pages here. Let me keep going.

16:02 18 You understand she did look at data from a mud log,  
16:02 19 correct?

16:02 20 A. Correct, I do understand that.

16:02 21 Q. That mud log included data for M57B, correct?

16:02 22 A. Yes.

16:02 23 Q. The time she spent looking at the mud log, is that  
16:02 24 included in the 27 minutes of your report, or is it outside?

16:02 25 A. That's in there, I think.

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16:02 1 Q. You think she looked at the mud log in the same 27-minute  
16:02 2 period?

16:02 3 A. I'm trying to recall the deposition. I'm sure she had  
16:02 4 looked at the mud log if she was reviewing the whole well.

16:02 5 Q. You know she looked at information on April 2, correct?

16:03 6 A. She had published little PowerPoint slides that showed  
16:03 7 some of her calculations.

16:03 8 Q. So a week before the 27-minute time period that you cite  
16:03 9 in your report, she was looking at mud logs and corresponding  
16:03 10 with her -- the other people at BP, correct?

16:03 11 A. Yes.

16:03 12 Q. On April 4, she sent slides to her coworkers that  
16:03 13 contained logging while drilling data, correct?

16:03 14 A. Yes.

16:03 15 Q. Is that included in your 27 minutes?

16:03 16 A. Well, obviously not.

16:03 17 Q. She also had references to lithology during that time  
16:03 18 period. You saw that, correct?

16:03 19 A. Yes.

16:03 20 Q. She looked at max gas hot wire information on that log,  
16:03 21 correct?

16:03 22 A. Yes, on that -- what she displayed on that, yes.

16:03 23 Q. April 4, another PowerPoint from Ms. Skripnikova to her  
16:03 24 coworkers about the open hole interval, correct?

16:04 25 A. I take your word for that.

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16:04 1 Q. So looking at mud logs and LWD data in addition to the  
16:04 2 triple combo document that you looked at, that would be an  
16:04 3 appropriate thing for someone in her position to be looking at,  
16:04 4 correct?

16:04 5 A. Yeah. Those were things you should look at, yeah.

16:04 6 Q. She also went out to the rig from April 9 to April 15,  
16:04 7 correct?

16:04 8 A. Yes, she was on the rig.

16:04 9 Q. Her six days on the rig, is that included in the  
16:04 10 27 minutes of analysis set forth in your report?

16:04 11 A. It's hard to fit that in in 27 minutes.

16:04 12 Q. I would think.

16:04 13 But I'm just asking, in terms of your assessment she  
16:04 14 only did something over 27 minutes, you excluded her time on  
16:04 15 the rig, correct?

16:04 16 A. I was responding -- she responded to the e-mail, asked a  
16:04 17 question, responded 27 minutes later. At her deposition she  
16:04 18 testified that she was looking at the triple combo when she did  
16:04 19 that work.

16:04 20 Q. Lastly, you were shown a series of documents, some of  
16:04 21 which -- that postdated the accident. Do you recall seeing  
16:05 22 those in your direct examination?

16:05 23 A. Yes.

16:05 24 Q. The first one --

16:05 25 MR. REGAN: Let's put up 8025.4. I'm sorry,

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16:05 1 D-8025.4. It was one of Mr. Hill's slides.

16:05 2 **BY MR. REGAN:**

16:05 3 **Q.** There was a sentence that you read -- first of all, this  
16:05 4 was a document that was created for efforts to close the well  
16:05 5 that was flowing at the time, correct?

16:05 6 **A.** That's my understanding.

16:05 7 **Q.** Right. So this was not a document created to analyze M57B  
16:05 8 as to whether it was an uppermost hydrocarbon-bearing zone for  
16:05 9 MMS regulations, was it?

16:05 10 **A.** That's my understanding also, yes.

16:05 11 **Q.** The sentence -- you read half a sentence on your direct.  
16:05 12 I would like to read the whole one.

16:05 13 You say: "There was a consensus that these gas zones  
16:05 14 were likely to be open."

16:05 15 Do you recall being asked about that?

16:06 16 **A.** Yes.

16:06 17 **Q.** The sentence continued: "But the contribution and  
16:06 18 depletion of these zones was an area of uncertainty."

16:06 19 What does that mean to you, that the people that  
16:06 20 wrote the document said, "The contribution and depletion of  
16:06 21 these zones was an area of uncertainty"?

16:06 22 **A.** I think the words "contribution and depletion" imply that  
16:06 23 the size or the aerial extent of the zones, of these two zones,  
16:06 24 the M57B and the M56A, are unknown, and that as the well is  
16:06 25 blowing out, they are at a higher pressure than they could be,

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16:06 1 because of maybe they have limited aerial extent, they could be  
16:06 2 depleting.

16:06 3 Q. That would be your interpretation of that sentence,  
16:06 4 correct?

16:06 5 A. Well, yeah. Yes, that would be my interpretation.

16:06 6 Q. The May 25 memoranda that you looked at, you acknowledge  
16:06 7 that was a draft memorandum, correct?

16:06 8 A. Correct.

16:06 9 Q. You looked at a July 26 technical memoranda, correct?

16:07 10 A. Correct.

16:07 11 Q. With respect to that one, again -- you looked at the whole  
16:07 12 document, right?

16:07 13 A. Yes, I did.

16:07 14 Q. Let me show you TRES-3551.26.2. TRES-3551.26.2.

16:07 15 This is a page that says: "Three sands have been  
16:07 16 identified in the TD hole section."

16:07 17 It talks about M57B, correct?

16:07 18 A. Correct.

16:07 19 Q. Indicates no core samples were taken, correct?

16:07 20 A. Correct.

16:07 21 Q. It says: "Fluid typing of the sands is uncertain."

16:07 22 As a petrophysicist, as a reservoir engineer, could  
16:07 23 you tell Judge Barbier what that means, when people say "fluid  
16:07 24 typing of the sands is uncertain"?

16:07 25 A. This is the July 26 one.



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16:07 1 Q. It is, sir, yes.

16:07 2 A. The fluid typing doesn't seem to be so uncertain prior to  
16:08 3 this draft, but the person writing this is expressing an  
16:08 4 opinion that it's difficult for them to figure out what it is.

16:08 5 Q. Are you making a credibility judgment about the author,  
16:08 6 Dr. Strickland, in connection with reaching your opinions?

16:08 7 A. No. I was making a statement about the genesis of this  
16:08 8 document.

16:08 9 Q. Okay. You looked at a draft, and this is the final,  
16:08 10 correct?

16:08 11 A. This is the last one I saw.

16:08 12 Q. The final says, "Fluid typing of the sands is uncertain,"  
16:08 13 correct?

16:08 14 A. Correct.

16:08 15 Q. It's written by people who are in the field of  
16:08 16 petrophysics, correct?

16:08 17 A. Yeah, I think that's right. I'm not sure exactly who  
16:08 18 typed that sentence, but I think that's right.

16:08 19 Q. It continues: "And parameters are difficult to assess  
16:08 20 accurately due to the thin nature of these sands being below  
16:08 21 confident log resolution."

16:08 22 As a petrophysicist or a reservoir engineer, what  
16:08 23 does that mean?

16:08 24 A. "Are difficult to assess accurately due to the thin nature  
16:09 25 of the sands." The assessment -- I guess if you are saying

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16:09 1 accurately -- I guess the guy is just trying to -- whoever is  
16:09 2 writing this is trying to bolster his lead-in phrase that it's  
16:09 3 uncertain.

16:09 4 Q. In doing your work, you looked at and would assess all of  
16:09 5 the document, not just half a sentence or a piece here or  
16:09 6 there, correct?

16:09 7 A. Sure.

16:09 8 Q. Just like when you are looking at one of those triple  
16:09 9 combo logs, you want to look AT all of the information, not  
16:09 10 just a snippet, not just a piece, correct?

16:09 11 A. Yes.

16:09 12 MR. REGAN: If we could put up Mr. Hill's  
16:09 13 demonstrative again, which I believe was 8025, D-8025, the  
16:10 14 cover one.

16:10 15 BY MR. REGAN:

16:10 16 Q. And you went through a variety of these documents, but I  
16:10 17 just have one last thing I want to ask you about.

16:10 18 You looked at all the documents that are represented  
16:10 19 on this demonstrative, correct?

16:10 20 A. Yes.

16:10 21 MR. REGAN: If we go to the ELMO, please.

16:10 22 BY MR. REGAN:

16:10 23 Q. Is there anywhere in any of those documents where anyone  
16:10 24 reached a conclusion that M57B was a hydrocarbon-bearing zone  
16:10 25 consistent with the definition that you have in your report?

## RICHARD STRICKLAND - CROSS

16:10 1 A. I would have thought that the tables that were shown -- we  
16:10 2 showed a couple of them listing the properties that BP  
16:10 3 calculated. It's a gas zone. It has porosity. It has  
16:10 4 hydrocarbon saturation. It has permeability. Those are the  
16:10 5 physical properties.

16:10 6 Q. Right.

16:11 7 A. Now, then, if it's going to flow, you need to create a  
16:11 8 pressure drop.

16:11 9 Q. Right. And that's my question. Is there any one of those  
16:11 10 documents that says there was a pressure drop sufficient so  
16:11 11 that a zone that had gas in it actually could have flowed into  
16:11 12 the wellbore in enough quantity to affect wellbore operations?

16:11 13 Did you see any conclusion like that?

16:11 14 A. Yeah. I think there's -- we had that one that we showed  
16:11 15 that says -- I think it was the shut-in wellhead pressure  
16:11 16 document. If you could go back to that one.

16:11 17 Q. You believe that that one made a conclusion that M57B --

16:11 18 A. Well, I think that's what they were worried about.

16:11 19 Q. Let me be more specific then. Pre-blowout. I'm not  
16:11 20 talking about May 25 operations in terms of trying to stop the  
16:11 21 flow of oil; I'm talking about pre-blowout.

16:11 22 Any of those documents reach a conclusion consistent  
16:11 23 with your definition of what a hydrocarbon-bearing zone is?

16:11 24 A. All those documents were post-blowout.

16:11 25 Q. Correct.

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16:11 1           **MR. REGAN:** Thank you, Dr. Strickland. That's all I  
16:11 2 have.

16:12 3           **THE COURT:** Cameron.

16:12 4           **MR. BECK:** No questions, Your Honor.

16:12 5           **THE COURT:** Halliburton.

16:12 6           **MR. HILL:** Just a couple quick questions. Gavin Hill  
16:12 7 for Halliburton, on redirect.

**REDIRECT EXAMINATION**

16:12 8  
16:12 9 **BY MR. HILL:**

16:12 10 **Q.** I don't have it at my fingertips, but you were shown a  
16:12 11 demonstrative by BP's counsel that basically compared the  
16:12 12 triple combo of M56A to M57B.

16:12 13           Do you remember that demonstrative?

16:12 14 **A.** Yes.

16:12 15           **MR. HILL:** Can you put it up there for me, please.

16:12 16 **BY MR. HILL:**

16:12 17 **Q.** As you look at the comparison of the signature for these  
16:13 18 two sands on this triple combo log, do both of them have a  
16:13 19 left-hand excursion?

16:13 20 **A.** Yes.

16:13 21 **Q.** For gamma?

16:13 22 **A.** Right.

16:13 23 **Q.** Do both of them have a right-hand excursion for  
16:13 24 resistivity?

16:13 25 **A.** They do.

## RICHARD STRICKLAND - REDIRECT

16:13 1 Q. Do the density and porosity lines intersect on both of  
16:13 2 them?

16:13 3 A. The density and neutron porosity lines come together on  
16:13 4 both of them.

16:13 5 Q. The bottom one is what Ms. Skripnikova called out as the  
16:13 6 uppermost hydrocarbon sand, correct?

16:13 7 A. Yes.

16:13 8 Q. The one above it in 57B essentially follows the same  
16:13 9 pattern recognition, correct?

16:13 10 A. It does.

16:13 11 Q. One last question. You were asked questions today about  
16:13 12 various logs, and I think you have done a good job of  
16:13 13 explaining why each of the logs that you discussed supported  
16:13 14 your theories today, with the exception of one.

16:13 15 BP asked you about this ELAN analysis, correct?

16:13 16 A. Yes.

16:13 17 Q. Have you seen an ELAN analysis before this case?

16:13 18 Do you have an understanding of what an ELAN analysis  
16:13 19 is?

16:13 20 A. Yeah.

16:13 21 Q. Is what BP is claiming here as the ELAN analysis that  
16:13 22 supports the idea that M57B contains water, does that comport  
16:14 23 with your understanding of what an ELAN analysis is?

16:14 24 A. No. When I saw the ELAN label on that one strip --

16:14 25 Q. Why were you confused?

## RICHARD STRICKLAND - REDIRECT

16:14 1 A. And so that's why I kept calling my client and saying,  
16:14 2 "Okay. There must be an ELAN analysis out here somewhere."

16:14 3 Q. Was one ever found?

16:14 4 A. No.

16:14 5 Q. Have you seen one in this case?

16:14 6 A. I have not.

16:14 7 Q. You weren't presented one by BP's counsel, were you?

16:14 8 A. I was not.

16:14 9 Q. Do you call what BP has identified as an ELAN analysis an  
16:14 10 actual ELAN analysis?

16:14 11 A. That's not what I'm used to seeing.

16:14 12 MR. HILL: No further questions, Your Honor.

16:14 13 THE COURT: Thank you, sir.

16:14 14 THE WITNESS: Thank you.

16:14 15 THE COURT: Who is Halliburton's next witness?

16:14 16 MR. GODWIN: Your Honor, we have a couple options.

16:14 17 One is we have a witness here who we could call. He would not  
16:14 18 be completed today. That's Dr. Glen Stevick. We could call  
16:14 19 him today and start him today.

16:14 20 THE COURT: Do you have anyone who is not an expert?

16:14 21 MR. GODWIN: Not here today, Judge, we don't.

16:14 22 Alternatively, I can put on four videos, for a  
16:15 23 total of 43 minutes. And then what we could do, Judge, is, we  
16:15 24 don't call Dr. Stevick today. Then first thing Tuesday --

16:15 25 THE COURT: Let's play the videos, then we will call

16:15 1 it a day.

16:15 2 **MR. GODWIN:** Then first thing Tuesday morning, I will  
16:15 3 put on Jesse Gagliano, Your Honor.

16:15 4 **THE COURT:** That sounds good.

16:15 5 **MR. GODWIN:** Good. We will start with the videos,  
16:15 6 Your Honor.

16:15 7 **THE COURT:** Yes. Tell us who the videos are.

16:15 8 **MR. GODWIN:** Yes, Your Honor. The first one is  
16:15 9 Mr. Greg Garrison with the OTC, Your Honor.

16:15 10 **MR. HILL:** Your Honor, may I approach to provide  
16:15 11 transcripts?

16:15 12 **THE COURT:** Yes.

16:15 13 **MR. GODWIN:** When he finishes, Your Honor, then we'll  
16:15 14 have Craig Gardner, with Chevron; Ronnie Faul, formerly with  
16:15 15 Halliburton; and Rickey Morgan, with Halliburton. There will  
16:15 16 be four of them, for a total of 43 minutes, Judge.

16:15 17 **THE COURT:** Fair enough.

16:16 18 Stop it for one second.

16:16 19 **MR. BROCK:** Mike Brock for BP.

16:16 20 We just wanted to note for the record that these  
16:16 21 are designations that come out of the bundles. I don't want to  
16:16 22 interrupt the proceedings today and the videotape, but we would  
16:16 23 insist on our -- the objections that we have put in the record  
16:16 24 on the bundles -- of the depositions that are being played from  
16:16 25 the bundles.

16:16 1 THE COURT: Sure. I understand.

16:16 2 MR. BROCK: That's all.

16:16 3 THE COURT: Thank you.

16:16 4 We can play it.

16:16 5 (Greg Garrison testified by video deposition.)

16:32 6 THE COURT: All right. Next video?

16:32 7 MR. GODWIN: Your Honor, the next one is Mr. Craig

16:32 8 Gardner, with Chevron.

16:32 9 THE COURT: Do we have his transcripts?

16:32 10 MR. GODWIN: Yes, sir. We do, Your Honor.

16:32 11 THE COURT: You can give them all to us if you'd

16:32 12 like. It will be easier.

16:33 13 MR. HILL: Ready?

16:33 14 THE COURT: Yes.

16:33 15 (Craig Gardner testified by video deposition.)

16:44 16 MR. GODWIN: That concludes that one, Your Honor.

16:44 17 The next one, Judge, is Mr. Ronnie Faul, with Halliburton.

16:44 18 THE COURT: All right.

16:44 19 (Ronnie Faul testified by video deposition.)

16:54 20 MR. GODWIN: That concludes Mr. Faul.

16:54 21 The next one and the last one is Mr. Rickey

16:54 22 Morgan with Halliburton.

16:54 23 THE COURT: Very well.

16:54 24 (Rickey Morgan testified by video deposition.)

17:03 25 MR. GODWIN: Your Honor, that concludes the four



17:03 1 videos and what we have for today.

17:03 2 Tuesday morning, with Your Honor's permission,  
17:03 3 we will start with Jesse Gagliano at 8:00, Judge.

17:03 4 **THE COURT:** Gagliano will be first on Tuesday?

17:03 5 **MR. GODWIN:** Yes, he will, Judge.

17:03 6 **THE COURT:** Who is going to be next?

17:03 7 **MR. GODWIN:** Next, Your Honor, will be David Bolado,  
17:03 8 Your Honor. David Bolado.

17:03 9 **THE COURT:** I had him crossed off. I thought you  
17:03 10 told me you weren't calling him.

17:03 11 **MR. GODWIN:** If we had had Ravi, we were not going to  
17:03 12 call him, Judge. And without Ravi we need to call him.

17:03 13 **THE COURT:** Okay.

17:03 14 **MR. GODWIN:** Then Dr. Glen Stevick.

17:04 15 And the next after that will be Sam Lewis,  
17:04 16 Dr. Sam Lewis, and then Gene Beck, Your Honor.

17:04 17 Then there are two more videos if we need next  
17:04 18 week. But we believe that will fill up next week, since we  
17:04 19 only have three days of court, Judge: Tuesday, Wednesday,  
17:04 20 Thursday. And we'll push it along as quickly as we can and be  
17:04 21 prepared on Wednesday at noon to state who, if anyone, we will  
17:04 22 have the following week.

17:04 23 But we are moving along with your direction in  
17:04 24 mind, Judge.

17:04 25 **THE COURT:** Okay. Anybody have anything else?

17:04 1 MR. GODWIN: Thank you, Your Honor.

17:04 2 MR. UNDERHILL: Briefly, Your Honor.

17:04 3 THE COURT: Wait a minute. Mr. Underhill has  
17:04 4 something.

17:04 5 MR. UNDERHILL: Mike Underhill, on behalf of the U.S.  
17:04 6 Your Honor, just to put it on the radar  
17:04 7 screen -- and it goes to the issue of experts. I may be  
17:04 8 reading too much into what Mr. Godwin says. But I think  
17:05 9 there's a -- it sounds like at least a possibility that next  
17:05 10 week, if they don't conclude Halliburton's case, the following  
17:05 11 week they will head into the end of their case pretty early,  
17:05 12 which means that we then will be heading into BP's case in  
17:05 13 chief.

17:05 14 This is partly for selfish reasons for my team,  
17:05 15 having to do with hotel issues down the road, especially around  
17:05 16 Jazz Fest and going into May. I'm trying to figure out how  
17:05 17 long we're going to be in trial.

17:05 18 I've got a list that I can provide to Ben, if  
17:05 19 you want. But I think I calculate 22 or 23 BP witnesses.  
17:05 20 They've got three engineers from the Bly investigation team  
17:05 21 that want to talk about the Bly report, despite the fact it's  
17:05 22 in. Mr. Bly was on the stand for two days.

17:05 23 THE COURT: Well, I'm expecting that BP is going to  
17:05 24 make a real effort to cut down the number of witnesses, so  
17:05 25 we'll see.

17:05 1 What are you asking them, to give you a  
17:05 2 heads-up?

17:05 3 **MR. UNDERHILL:** You know, I can't force them. All  
17:06 4 I'm saying is that it would be to the parties' convenience, as  
17:06 5 well as the Court, who has to read the reports, if at the  
17:06 6 earliest reasonable opportunity we can know who they are not  
17:06 7 going to call.

17:06 8 **THE COURT:** I think that's reasonable.

17:06 9 So can I ask if Mr. Brock can give us a heads-up  
17:06 10 maybe by sometime early next week?

17:06 11 **MR. BROCK:** Your Honor, Mike Brock for BP.

17:06 12 I have not engaged with Mr. Underhill on this,  
17:06 13 but I have talked to lawyers for some of the other parties  
17:06 14 about the issue of our witness list. And I hope earlier than  
17:06 15 the deadline you have just set that I will be able to inform  
17:06 16 them of a few witnesses who I'm pretty sure that we will not  
17:06 17 use.

17:06 18 **THE COURT:** Okay.

17:06 19 **MR. BROCK:** If something happens during the  
17:06 20 Halliburton case that changes that, I will move those witnesses  
17:06 21 to the back so that if they are not preparing for those, that  
17:06 22 will be helpful. I think that will help some. I think that  
17:07 23 will help the situation some.

17:07 24 **THE COURT:** Okay. Anyone have anything else?

17:07 25 If not, everyone enjoy your spring break.

17:07 1 Tuesday at 8:00 a.m.

17:07 2 (Proceedings adjourned.)

17:07 3 \* \* \*

4 CERTIFICATE

5 I, Toni Doyle Tusa, CCR, FCRR, Official Court  
6 Reporter for the United States District Court, Eastern District  
7 of Louisiana, do hereby certify that the foregoing is a true  
8 and correct transcript, to the best of my ability and  
9 understanding, from the record of the proceedings in the  
10 above-entitled matter.

11  
12  
13 s/ Toni Doyle Tusa  
14 Toni Doyle Tusa, CCR, FCRR  
15 Official Court Reporter  
16  
17  
18  
19  
20  
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24  
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'	167 feet [1] 6504/11	6523/25
'reply [1] 6451/9	17,260 [1] 6503/21	30 inches [3] 6478/11 6478/12 6478/16
'the [1] 6528/7	17,300 [1] 6503/22	30 percent [15] 6476/23 6500/25 6501/4
.	17,400 [1] 6539/14	6501/9 6501/12 6501/15 6502/11
...	17,467 [9] 6446/6 6449/17 6455/6	6523/19 6530/14 6530/16 6531/15
... gas [1] 6456/4	6455/9 6455/10 6463/11 6482/25 6504/1	6532/12 6532/15 6532/16 6536/22
... in [1] 6458/17	6539/7	300 [2] 6431/23 6512/8
.2 [2] 6527/8 6542/25	17,467 feet [2] 6453/7 6453/11	3089 [1] 6432/17
.3 [1] 6527/6	17,530 [1] 6539/14	3272 [2] 6486/23 6491/23
.4 [2] 6527/2 6527/4	17,803 [2] 6451/17 6455/11	3273 [1] 6490/2
.5 [1] 6526/21	17,806 feet [1] 6455/6	3274 [1] 6498/1
.6 [1] 6526/16	17.95 [1] 6465/7	3275 [1] 6486/19
.8 [1] 6525/14	1700 [1] 6433/9	33 percent [1] 6470/22
0	17467 [1] 6461/2	333 [1] 6504/22
00001.023 [1] 6502/19	18 [3] 6465/8 6535/8 6539/4	333 feet [2] 6505/2 6505/5
02771 [1] 6428/7	18 percent [1] 6461/10	35 [1] 6468/11
03533.32 [1] 6490/2	18,280 [1] 6440/23	3512 [1] 6496/11
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