

Deposition Testimony of:

Brad Billon

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Page 347:13 to 347:18

00347:13 Q. I'm going to hand you initially
14 what's been previously marked as
15 Exhibit 2801. I believe you looked at this
16 yesterday with Mr. Bruno. It's a copy of the
17 30(b)(6) deposition notice to M-I, LLC.
18 A. Right.

Page 348:01 to 348:10

00348:01 On Topic 1, dealing with
02 contracts, drilling contract service
03 agreements, are you aware of any contract
04 between M-I and Halliburton relating to the
05 provision of services?
06 A. I do not.
07 Q. Are you aware of any contract
08 with Halliburton and M-I related to the
09 provision of goods?
10 A. Not to my knowledge.

Page 354:12 to 354:18

00354:12 Q. And we'll get into it a little
13 bit more momentarily about the actual
14 decision-making process and how that went
15 about. But as M-I and BP were deciding,
16 recommending, or trying to determine whether
17 to use this as a spacer, was Halliburton
18 involved in any of those discussions?

Page 354:20 to 354:20

00354:20 THE WITNESS: Not that I'm aware of.

Page 355:05 to 355:11

00355:05 Q. In either your conversations
06 with Mr. Maxie or Mr. Lindner or your review
07 of those e-mails, did you see anything
08 suggesting that Halliburton was involved in
09 the decision to use the LCM spacer?
10 A. I don't recall seeing anything
11 like that.

Page 359:13 to 359:22

00359:13 Q. So your understanding is that
14 after initially typing up the displacement
15 procedure, BP informed Mr. Lindner that they
16 were going to do a negative test?

17 A. Yes.
18 Q. After being informed of that,
19 Mr. Lindner typed up a new displacement
20 procedure in which the negative test were
21 prepared?
22 A. That's correct.

Page 362:01 to 362:05

00362:01 Q. Did you discuss that with
02 Mr. Lindner in preparation for your
03 deposition?
04 A. I did not discuss whether or not
05 he led the discussion around the spacer, no.

Page 362:07 to 362:10

00362:07 Q. Did you and he discuss the
08 meeting held on the Deepwater Horizon on
09 April 20th in which the displacement
10 procedure was discussed?

Page 362:12 to 362:17

00362:12 THE WITNESS: We did not discuss the
13 actual meeting. He told me that the meeting
14 occurred.
15 BY MR. HARTLEY:
16 Q. Did he convey any details about
17 what was discussed in that meeting?

Page 362:19 to 363:16

00362:19 THE WITNESS: They discussed -- you
20 know, he presented the -- well, let's talk
21 about -- let me back up one minute. Let's
22 talk about -- which meeting are you talking
23 about? We're talking about two meetings,
24 right? The meeting where he was informed
25 they were going to change the procedure, and
00363:01 then there was a meeting where the rig crew
02 was there.
03 BY MR. HARTLEY:
04 Q. Or certain members of the rig
05 crew?
06 A. Right. Right.
07 Q. So there's two meetings. The
08 first, as I understand it, is, BP well site
09 leader and Mr. Lindner alone?
10 A. Or -- I don't know if they were
11 alone, but it was between Leo and the well
12 site leader, yes.
13 Q. And in that meeting, it was

14 conveyed to Mr. Lindner that a negative test
15 would be run?
16 A. Right.

Page 363:23 to 364:02

00363:23 Q. After that meeting, then there
24 was a larger meeting with some members of the
25 rig crew to discuss the upcoming operations,
00364:01 and primarily the displacement procedure?
02 A. Right.

Page 364:05 to 364:11

00364:05 Q. I'm going to hand you what has
06 been previously marked as Exhibit 967. This
07 is the displacement procedure that Mr. Lindner
08 typed up after being informed that BP
09 wanted -- was going to run a negative test;
10 is that right?
11 A. It looks to be, yes.

Page 366:19 to 367:25

00366:19 Q. And I'm wondering why -- are you
20 suggesting Mr. Lindner didn't prepare the
21 procedure, he got it from somebody else, and
22 he just merely was transcribing it, or did he
23 actually prepare this, solicit comments from
24 others? I'm wondering about the genesis of
25 it.

00367:01 A. Okay. I'll try to give you
02 what -- you know, what I understand.

03 Q. Your understanding.

04 A. My understanding is that yes, he
05 is -- he prepares a draft, and he vets it out
06 with all of the parties involved, you know,
07 which I'm not sure who all he talked to. And
08 then, of course, presents it to BP. They
09 look at it, they that finalize it, and that's
10 what they go with, and it becomes, you know,
11 BP's procedure.

12 Q. And I think you mentioned that
13 they start from some sort of form? Did I
14 hear that right yesterday? That's why it's
15 on the M-I letterhead? It starts with a
16 form, and then they go from there?

17 A. I don't believe I called it a
18 form. This is just basically a Word
19 document. You know, it's a -- I mean, it's a
20 template. I think they probably have --

21 Q. "Template" may be what I --

22 A. Yeah, they probably have done

23 these before, you know, and it's just a good
24 way to communicate, you know, what they're
25 actually going to do.

Page 368:06 to 369:06

00368:06 Q. On the second step, towards the
07 top of the displacement procedure, it says,
08 the first sentence, "Remember it's very
09 important that we must avoid trapping SBM in
10 pits, pumps, lines and hole." Did I read
11 that correctly?
12 A. Yes.
13 Q. Do you have an understanding of
14 why it's important not to have SBMN in the
15 pits, pumps, lines, and holes?
16 A. Well, you want -- you want to
17 clean all of those lines, you know, pits,
18 pumps, and, you know, everything out. That's
19 what we're trying to do. And it's the
20 prudent thing to flush them out, you know.
21 Q. Is that a general procedure on
22 making sure those aspects are clean, or is it
23 something unique to running it with the LCM
24 pill?
25 A. No. This is just -- this
00369:01 would -- this would be in every displacement
02 procedure, I would think.
03 Q. So wanting to keep SBM away, it
04 has nothing to do with potential
05 contamination of the LCM?
06 A. Not at all.

Page 369:24 to 371:23

00369:24 Q. Towards the bottom of
25 Exhibit 967, under the displacement aspect of
00370:01 this Procedure, No. 8 reads, in part,
02 "Compliance engineer will take a sample for
03 static sheen test and ROC and shut down
04 pumps." Did I read that correctly?
05 A. Yes.
06 Q. Is the compliance engineer
07 referred there -- to there Mr. Lindner?
08 A. No. That was Greg Meche.
09 Q. So during the sheen test,
10 Mr. Meche will take a sample and actually
11 conduct the test?
12 A. Yes.
13 Q. Do you know whether that
14 occurred on April 20th?
15 A. From what I was told, it did.
16 Q. And then after conducting that
17 sheen test, Mr. Meche advised the rig that

18 there was a pass or successful sheen test?
19 A. Yes.
20 Q. The last line -- sentence of
21 Step 8 says, "Switch to overboard discharge."
22 Did I read that correctly?
23 A. Yes.
24 Q. Was it M-I's proposal to switch
25 to overboard discharge, or was this
00371:01 something -- some input received by another
02 company?
03 A. I wouldn't know. It certainly
04 wouldn't be our call. I mean, you know. . .
05 Q. Which was my question. Do you
06 know why it was in this displacement
07 procedure to switch to overboard discharge at
08 that point?
09 A. Well, that's -- that was the
10 purpose. You weren't going to catch the
11 spacer, you were going to dispose of the
12 spacer overboard, and the remaining seawater,
13 you know.
14 Q. Dump it into the Gulf?
15 A. Into the Gulf, yes.
16 Q. Do you know whether it's
17 feasible to run the returns through a pit and
18 then overboard?
19 A. I would think that it is.
20 Q. Do you know why the decision was
21 made to divert directly overboard rather than
22 running through the pits?
23 A. No, I don't.

Page 372:12 to 372:16

00372:12 Q. Do you know whether M-I was
13 involved in the decision to divert or
14 discharge directly overboard rather than
15 going through the pits?
16 A. I don't believe we were.

Page 373:23 to 374:21

00373:23 Q. Do you know whether tanks were
24 being cleaned simultaneous with the
25 displacement procedure?
00374:01 A. I have heard that they were
02 cleaning some tanks, but that's the -- that's
03 the extent of my knowledge.
04 Q. Okay. Was M-I involved at all
05 in the decision to clean pits simultaneous
06 with the mud -- with the mud displacement
07 procedure?
08 A. Not that I'm aware of.
09 Q. Was M-I involved at all in the

10 discussions with those on the rig cleaning
11 the pits?
12 A. I wouldn't know.
13 Q. Is that a role M-I would
14 typically serve, having discussions with the
15 contractor cleaning the pits?
16 A. That's not in the scope of our
17 work.
18 Q. Do you know whether it's common
19 during displacement procedures like reflected
20 in Exhibit 967 to have simultaneous movement
21 of the fluids on the rig?

Page 374:23 to 374:23

00374:23 THE WITNESS: I wouldn't know.

Page 374:25 to 375:02

00374:25 Q. Is that something that M-I would
00375:01 typically recommend in putting together a
02 displacement procedure like 967?

Page 375:04 to 375:06

00375:04 THE WITNESS: That's not something that
05 we would recommend. That's out of the --
06 that's not our operation.

Page 375:08 to 375:20

00375:08 Q. Other than the displacement
09 procedure on the Deepwater Horizon on
10 April 20th, M-I had been involved in
11 preparing/typing up other displacement
12 procedures for other rigs; is that fair?
13 MS. SCOFIELD: Object to the form.
14 THE WITNESS: That's fair.
15 BY MR. HARTLEY:
16 Q. That's within the scope of
17 services provided under the BP contract and
18 contract with other operators, like Shell?
19 MS. SCOFIELD: Object to the form.
20 THE WITNESS: I would think so, yeah.

Page 375:24 to 376:02

00375:24 Q. Do you know whether it is common
25 or uncommon for M-I to recommend cleaning of
00376:01 the pits while there's simultaneous movement
02 of fluids during a displacement procedure?

Page 376:04 to 376:06

00376:04 THE WITNESS: Like I said, that's
05 not -- that's not in the scope of our work,
06 so I would say no.

Page 376:08 to 376:15

00376:08 Q. So it is, though, within the
09 scope of your work to prepare the
10 displacement procedure or type it up, in
11 collaboration with the operator?
12 MS. SCOFIELD: Object to the form.
13 THE WITNESS: I would say that in this
14 case, we did do that, yes. In collaboration
15 with the operator, yes.

Page 377:13 to 378:21

00377:13 Q. Do you know whether M-I was
14 involved at all in the decision to, you know,
15 empty trip tanks or wash certain pits at
16 certain times?
17 A. I don't know.
18 Q. That's beyond the scope of your
19 services provided to BP on this rig?
20 A. Yes.
21 Q. I want to talk for a few minutes
22 about the LCM spacer. We talked a lot about
23 it yesterday. You did. I sat and listened.
24 And I understand it's a combination of
25 Form-a-Set AK and Form-a-Squeeze. Is that
00378:01 right?
02 A. That's correct.
03 Q. And those were then combined and
04 used as a spacer?
05 A. Well, they were combined, and
06 then some adjustments were made to the
07 rheological properties of the viscosity, if
08 you will, to make them suitable for a spacer.
09 Q. And what adjustments were made
10 other than the addition of barite?
11 A. Duo-Vis, the xanthan gum
12 polymer, was added to increase the viscosity
13 of the spacer to make it suitable.
14 Q. Okay. And how does adding the
15 Duo-Vis make it suitable as a spacer?
16 A. It increased the viscosity. It
17 thickened it, you know.
18 Q. Other than thickening it, did it
19 change its properties, characteristics in a
20 way to make it suitable for a spacer?
21 A. No.

Page 379:22 to 381:11

00379:22 Q. All right. Had M-I ever used
23 Form-A-Set AK as a spacer before?
24 A. Not that I'm aware of.
25 Q. Has M-I ever used Form-A-Squeeze
00380:01 as a spacer before?
02 A. Not that I'm aware of.
03 Q. Has M-I ever used the
04 combination Form-A-Set AK and Form-A-Squeeze
05 as a spacer before?
06 A. No.
07 Q. Has M-I ever used LCM spacer, as
08 we understand that term, as a spacer before?
09 A. Not that I'm aware of.
10 Q. Has M-I ever run any test on the
11 suitability of the LCM spacer as a spacer?
12 MS. SCOFIELD: Object to the form.
13 THE WITNESS: I -- what do you mean by
14 "suitability"?
15 BY MR. HARTLEY:
16 Q. In the term you used it when you
17 referred to the addition of certain -- making
18 certain adjustments to ensure the suitability
19 as the spacer.
20 A. Okay. Leo Lindner actually took
21 a sample of each pit, combined them into a
22 container, stirred them up, mixed them up in
23 the, you know, ratios that they have been,
24 you know, put together, and checked the
25 rheology, and determined that it was thin,
00381:01 you know, it was a little -- well, not as
02 thick as he would like it. So that's when he
03 made the adjustment, you know, with the
04 Duo-Vis to raise the viscosity, to make it
05 more suitable or just like any other spacer.
06 BY MR. HARTLEY:
07 Q. Did he do that on April 19th?
08 A. I'm not sure of the day. It
09 was -- it was certainly prior to.
10 Q. Was it a day or two before the
11 LCM spacer was actually used?

Page 381:13 to 381:20

00381:13 THE WITNESS: I'm not sure on -- on the
14 date.
15 BY MR. HARTLEY:
16 Q. Okay. So if I understand, then,
17 the only test M-I has conducted on the
18 suitability of LCM spacer as a spacer was the
19 test you just discussed of Mr. Lindner?
20 A. That's correct.

Page 381:22 to 383:07

00381:22 BY MR. HARTLEY:

23 Q. Other than adding a
24 proportionate aspect of each LCM pill, what
25 did he do to evaluate its suitability as a

00382:01 spacer?

02 A. As I said, he checked rheology
03 of the pill, or the spacer, as you call it.

04 Q. How did he check the rheology?

05 A. With a FANN 35 rheometer.

06 Q. And what were the results of
07 that test?

08 A. I don't have the exact results
09 in front of me, but from what I understand,
10 from what he told me, the results, he felt,
11 were -- it was a little bit, you know, thin,
12 I guess, if you will, and needed to be
13 thickened up.

14 Q. How did he determine the
15 quantity Duo-Vis and/or barite to add to make
16 it suitable and viscous for use as a spacer?

17 A. I think -- I didn't ask
18 Mr. Lindner exactly, you know, how that took
19 place, but I would -- I would assume he added
20 the Duo-Vis, you know, some amount at a time
21 and observed the viscosity, you know.

22 Q. How did he determine at which
23 point it was viscous enough to use as a
24 spacer?

25 A. I couldn't tell you. I don't
00383:01 know.

02 Q. Do you know whether he tested
03 the rheological properties after adding the
04 barite and Duo-Vis?

05 A. You know, I'm trying to recall.
06 He may have. I'm just -- I just can't
07 recall.

Page 385:11 to 385:13

00385:11 Q. Okay. Are you aware of any test
12 conducted by M-I or others as to the
13 suitability of Form-A-Set AK as a spacer?

Page 385:15 to 385:25

00385:15 BY MR. HARTLEY:

16 Q. Setting aside Mr. Lindner's
17 test.

18 A. Before the incident or after
19 incident?

20 Q. Let's start before.

21 A. No.
 22 Q. Similarly, before the incident,
 23 are you aware of any test regarding the
 24 suitability of Form-A-Squeeze as a spacer?
 25 A. No.

Page 386:02 to 387:10

00386:02 BY MR. HARTLEY:

03 Q. Other than the test Mr. Lindner
 04 conducted as to the viscosity and the
 05 prebiological properties, are you aware of
 06 any test prior to April 20th as to the
 07 suitability of the LCM spacer for use a
 08 spacer?

09 A. No.

10 Q. Turning our attention to
 11 post-April 20th, are you aware of any test
 12 regarding the suitability of Form-A-Set AK as
 13 a spacer?

14 A. No.

15 Q. Are you aware of any test
 16 post-April 20th, 2010, regarding the
 17 suitability of Form-A-Squeeze as a spacer?

18 A. No.

19 Q. Are you aware of any test after
 20 April 20th, 2010, regarding the suitability
 21 of the LCM spacer for use as a spacer?

22 A. Yes.

23 Q. What tests are those?

24 A. I think that's the BP report
 25 where we provided them with the, you know,
 00387:01 materials and samples in and around -- I
 02 think it was May -- May 11th or so.

03 Q. Right. And we saw some of that
 04 material yesterday?

05 A. Yes.

06 Q. Other than that test, are you
 07 aware of any other testing conducted by M-I
 08 or others as to the suitability of the LCM
 09 spacer for use as a spacer?

10 A. No, I'm not.

Page 387:20 to 388:06

00387:20 Q. Okay. Did M-I conduct any
 21 compatibility test of the LCM spacer with any
 22 other fluids downhole, whether it be water,
 23 brine, SBM?

24 A. Not the LCM spacer.

25 Q. Okay. Prior to pumping the LCM
 00388:01 spacer on April 20th, then, there were no
 02 tests -- no compatibility tests regarding the
 03 LCM spacer with other fluids that maybe met

04 downhole?
05 MS. SCOFIELD: Object to the form.
06 THE WITNESS: That's correct.

Page 388:24 to 389:11

00388:24 Q. Would the LCM spacer coming into
25 contact with synthetic-based mud contaminate
00389:01 the spacer, contaminate the LCM spacer?
02 A. It would -- it would --
03 certainly there would be a mixture, yeah. It
04 would contaminate, yes.
05 Q. Would the meeting of the LCM
06 spacer with synthetic-based mud change the
07 properties expected of the LCM spacer?
08 A. Of that -- of that interface,
09 you know, where they meet, I would say yes.
10 Q. Would it risk accelerating the
11 setup time associated with the LCM spacer?

Page 389:13 to 389:13

00389:13 THE WITNESS: No.

Page 389:15 to 389:18

00389:15 Q. Would it delay the setup time of
16 the LCM spacer?
17 A. No. In this case, the
18 cross-linking material was not in the spacer.

Page 390:02 to 390:17

00390:02 Q. What effect, if any, would the
03 synthetic-based mud have on the LCM spacer
04 were they to come into contact?
05 A. It would create that interface
06 that I talked about. And what that interface
07 looks like, unless we -- you know, unless we
08 did some actual testing, I couldn't, you
09 know, be precise -- I couldn't precisely tell
10 you what the effect would be.
11 Q. Right. There aren't any tests
12 on that?
13 A. Not that -- not that M-I SWACO
14 has done.
15 Q. Would the LCM spacer similarly
16 be affected by coming into contact with
17 water?

Page 390:19 to 390:19

00390:19 THE WITNESS: I don't know.

Page 390:21 to 391:21

00390:21 Q. I think in response to some of
22 Mr. Leopold's questions yesterday, there was
23 discussion on certain transfers or settling
24 because the LCM spacer was heavy. Do you
25 recall that?

00391:01 A. Yes.

02 Q. Would that affect the
03 suitability of the LCM spacer for use as a
04 spacer?

05 A. No, because it's just like any
06 other spacer. You know, any other spacer is
07 going to be heavy with barite and viscous.

08 Q. Would coming into contact with
09 synthetic-based mud and/or water change the
10 viscosity of the LCM spacer?

11 A. In that particular interface,
12 where they come into contact. But to the --
13 to what extent, I couldn't say.

14 Q. We will need testing on that?

15 A. Yes.

16 Q. Do you know whether that
17 contamination, so to speak, with either water
18 or synthetic-based mud would change the
19 viscosity to the extent that it would no
20 longer make the LCM spacer suitable as a
21 spacer?

Page 391:23 to 392:04

00391:23 THE WITNESS: I would just be
24 speculating. Like you say, we will have to
25 do some testing on that.

00392:01 BY MR. HARTLEY:

02 Q. Has M-I done any testing on
03 these issues since April 20th?

04 A. No, they have not.

Page 392:06 to 392:13

00392:06 BY MR. HARTLEY:

07 Q. Has M-I utilized an LCM spacer
08 as a spacer since April 20th?

09 A. I don't believe we have.

10 Q. I want to talk for a minute
11 about the decision to use the LCM spacer as a
12 spacer. Did M-I recommend to BP that it be
13 used as a spacer?

Page 392:15 to 393:12

00392:15 THE WITNESS: M-I SWACO, or some
16 employees of M-I SWACO, probably suggested to
17 BP that it was an option, a possibility.
18 And. . .
19 BY MR. HARTLEY:
20 Q. Now, do you know why they
21 initially made that suggestion?
22 A. According to Doyle Maxie -- and
23 I've asked him that question, and M-I made
24 that suggestion because it certainly -- just
25 -- it was to reuse it in some form or
00393:01 fashion, you know. So. . .
02 Q. Why was there a desire to reuse
03 it?
04 A. I think to reuse it in some way
05 where we wouldn't have to -- well, dispose or
06 just throw it away, you know. It's worth
07 something, you know.
08 Q. So the option, then, is between
09 disposing of it as either industrial or
10 hazardous waste or running it downhole and
11 dumping it into the ocean? Are those the two
12 options?

Page 393:14 to 393:16

00393:14 BY MR. HARTLEY:
15 Q. Once those LCM pills were in
16 Tanks 3 and 5?

Page 393:18 to 394:13

00393:18 THE WITNESS: If you couldn't use them
19 on another well or a -- you know, another
20 event, you know, or keep them in -- you know,
21 keep them there.
22 BY MR. HARTLEY:
23 Q. They couldn't be used on a
24 subsequent well, could they?
25 A. Possible.
00394:01 Q. Wouldn't the bacterial
02 degradation prevent their use as LCM pills in
03 the future?
04 A. That's why I said possibly.
05 Just depend -- it depends upon time. If it
06 would have been days after, you know, or
07 something like that, possibly. But --
08 Q. When these discussions were
09 being held between M-I and BP as to the
10 potential use as a spacer, it wasn't going to
11 be matter of days before getting to the next
12 well potentially using it, was it?
13 A. I don't believe so.

Page 394:18 to 394:21

00394:18 Q. M-I understood at the time that
19 those LCM pills that were built would not be
20 used as LCM pills on a future well, didn't
21 it?

Page 394:23 to 395:10

00394:23 THE WITNESS: I believe they did, yes.
24 BY MR. HARTLEY:
25 Q. So recognizing that those pills
00395:01 would not be used in a future well, what
02 options were left with respect to those pills
03 other than disposal as either hazardous or
04 industrial waste or dumping them in the Gulf
05 if you run them downhole?
06 A. I think those were the two
07 options.
08 Q. So the suggestion was made to
09 use it as a spacer, to run it downhole, and
10 then dump it into the Gulf? Is that fair?

Page 395:12 to 395:19

00395:12 THE WITNESS: Yes.
13 BY MR. HARTLEY:
14 Q. Well, what I'm trying to wrap my
15 head around is the phrase "beneficial reuse."
16 I've heard that as an explanation, and I'm
17 trying to figure out how is it there a
18 beneficial reuse if the end result is dumping
19 it in the Gulf?

Page 395:21 to 397:21

00395:21 BY MR. HARTLEY:
22 Q. Is it because it's being used as
23 a spacer?
24 A. Well, I think you have to
25 consider that it would have to be taken
00396:01 ashore and handled by people -- you know,
02 tanks and trucks and, you know, what have
03 you, and disposed of in a -- some sort of
04 landfill or injection well or -- I don't
05 know. I'm not familiar with all of that
06 stuff, but. . .
07 Q. Do you know whether any of those
08 arrangements had been made for the logistics
09 of getting those LCM pills to shore to
10 dispose of properly?
11 A. I don't know.

12 Q. Do you know how long it would
 13 take for that process to occur?
 14 A. I don't know.
 15 Q. Is it in the order of a week or
 16 two?
 17 A. I don't know. We -- typically,
 18 you know, BP is the generator of the waste,
 19 of course, and we are not, so we don't
 20 typically -- we're not involved in disposing
 21 of the waste.
 22 Q. Once, then, the material is
 23 handed off to BP, it's their waste, and they
 24 deal with the logistics of getting it off?
 25 A. That's correct.
 00397:01 Q. Is M-I typically involved in
 02 making those logistical arrangements or
 03 suggesting how that LCM material ought to be
 04 dis- -- ought to be disposed of?
 05 A. No.
 06 Q. Do you know how much it would
 07 cost to dispose of the material properly?
 08 A. I don't -- I don't know.
 09 Q. Do you know how much it would
 10 cost to construct a spacer for use on the
 11 Macondo Well rather than using the LCM in
 12 Pits 3 and 5?
 13 A. I could give you a ballpark
 14 number, if you would like.
 15 Q. What would that be?
 16 A. I would say somewhere 8- to
 17 \$10,000.
 18 Q. So not an expensive -- I think
 19 you mentioned yesterday it wasn't expensive.
 20 A. Right. And I -- again, that's
 21 just a -- you know, give or take, you know.

Page 398:07 to 398:09

00398:07 As M-I made that suggestion to
 08 BP to use the LCM as a spacer, what was the
 09 benefit in M-I's opinion?

Page 398:11 to 399:20

00398:11 THE WITNESS: Reuse.
 12 BY MR. HARTLEY:
 13 Q. What do you mean by "reuse"?
 14 A. Well, to actually use it in the
 15 well, you know.
 16 Q. As opposed to constructing a
 17 spacer separate and apart from the LCM?
 18 A. Yes.
 19 Q. Then it seems to me, and correct
 20 me if I'm wrong, that really the point in

21 using the LCM spacer as a spacer was to save
22 time and money. Would that be a fair
23 characterization?
24 MS. SCOFIELD: Object to the form.
25 MR. HAYCRAFT: Object to the form.
00399:01 THE WITNESS: I don't know if it's fair
02 or not, but it's -- Im sure you would save
03 some time and you would save some money.
04 BY MR. HARTLEY:
05 Q. Do you know whether there were
06 any operational decisions that led to the use
07 of the LCM spacer as a spacer?
08 A. I don't know.
09 Q. Were there any operational
10 benefits to using it?
11 MS. SCOFIELD: Object to the form.
12 THE WITNESS: Again, it's not our
13 operation, so I wouldn't know.
14 BY MR. HARTLEY:
15 Q. Being familiar with the
16 Form-A-Set AK and Form-A-Squeeze, are you
17 aware of any operational benefit to using
18 those as a spacer?
19 MS. SCOFIELD: Objection to form.
20 THE WITNESS: No.

Page 399:22 to 400:01

00399:22 Q. Are you aware of any operational
23 detriment to building a typical spacer rather
24 than using the LCM spacer?
25 MS. SCOFIELD: Object to the form.
00400:01 THE WITNESS: No.

Page 400:10 to 400:14

00400:10 Q. Are you aware of any benefit to
11 using the LCM spacer other than saving time
12 and saving money?
13 MS. SCOFIELD: Object to the form.
14 THE WITNESS: I don't know.

Page 401:12 to 402:22

00401:12 Q. I was asking about the bases for
13 utilizing the LCM spacer as a spacer, whether
14 there were any operational benefits that were
15 the basis for that decision. I believe you
16 said that you did not know.
17 A. No, I didn't know. Okay.
18 Q. Okay.
19 A. I just wanted to estab- -- I was
20 thinking, again, about the -- I guess maybe

21 I'm not getting the questions in order, but I
22 was just thinking about your prior question
23 about time and money, what it would save, and
24 thinking that there would be some time and
25 some money saved, but also you would save
00402:01 building a new spacer and having to dispose
02 of it. I just -- I was trying to --
03 Q. Right. That would --
04 A. Yeah, just trying to make sure
05 you got that.
06 Q. Right. That would be both the
07 material utilized for that spacer and 8- to
08 \$10,000 or so that it would cost to do that?
09 A. Right. And then having to
10 dispose of that, you know, spacer one way or
11 the other.
12 Q. And that --
13 A. Okay. I just wanted -- that was
14 implied in my answer, but I just wanted to
15 make sure you --
16 Q. Understood. And if a new spacer
17 had been constructed, the type of spacers
18 typically used run downhole. That, too,
19 would have been discharged?
20 A. Yes. It would have been
21 additional waste, yeah. Okay. I just wanted
22 to make sure that --

Page 403:15 to 403:18

00403:15 Q. Okay. If you would, turn to the
16 second page of Exhibit 2815; the Bates in the
17 lower right end, 3817. Do you see that?
18 A. Yes.

Page 404:10 to 404:18

00404:10 Q. Do you know whether the
11 Form-A-Squeeze and Form-A-Set AK pills that
12 were sitting in Pits 3 and 5 were agitated
13 during that week they were in those pits?
14 A. I couldn't tell you that.
15 Q. Do you know whether anything was
16 done to them during that week to prevent
17 solidifying and consolidation setting up?
18 Anything?

Page 404:20 to 404:20

00404:20 THE WITNESS: I don't know that.

Page 404:22 to 405:05

00404:22 Q. Okay. Further in the e-mail,
23 Mr. Maxie writes, "Is there a chance that the
24 Form-A-Squeeze," or "FAS," "will plug and
25 dewater?" Do you see that?
00405:01 A. I do.
02 Q. Do you know whether M-I did any
03 testing as to whether Form-A-Squeeze would
04 plug or dewater?
05 A. No, we did not.

Page 406:08 to 406:20

00406:08 Q. Right. Turning to the prior
09 page, the last e-mail in the string, the one
10 we started off with at the very top. . .
11 A. Yes.
12 Q. Mr. Armand, who is BP project
13 engineering manager for M-I, writes, "Not a
14 problem as long as there are no operational
15 risk as we discussed." Did I read that
16 correctly?
17 A. Yes.
18 Q. Were there operational risks
19 discussed within M-I as to the use of the LCM
20 spacer as a spacer?

Page 406:22 to 407:01

00406:22 THE WITNESS: I think his statement
23 reads that "Not a problem as long as there
24 are no operational risk as we discussed." In
25 other words, we discussed that there was no
00407:01 operational risk.

Page 407:06 to 407:09

00407:06 Q. So M-I had a discussion about
07 the use of the LCM spacer as a spacer and
08 determined that there were no operational
09 risks?

Page 407:11 to 407:20

00407:11 THE WITNESS: I think we determined --
12 he vetted everything out, as you've read the
13 e-mails, with our team, as we talked about
14 with. . .
15 BY MR. HARTLEY:
16 Q. Probably Mr. LeBleu.
17 A. Mr. Lebleu or who -- I can't
18 remember exactly who we talked about that
19 with yesterday. But -- and then it was
20 presented to the BP drilling team.

Page 408:16 to 408:20

00408:16 Q. Do you know whether potential
17 operational risks were discussed by M-I with
18 BP?
19 A. I don't. I don't know. I don't
20 know of that conversation.

Page 408:24 to 408:24

00408:24 (Exhibit No. 2816 was marked for the record.)

Page 409:01 to 409:07

00409:01 Q. Let me hand you now what I've
02 marked as Exhibit 2816. It is Tab 21
03 on the Halliburton disc. The top e-mail
04 on Exhibit 2816 is from James Hoggan to
05 Mr. LeBleu, Mr. Maxie, and others, dated
06 April 18th. Do you see that?
07 A. Yes.

Page 409:16 to 410:13

00409:16 Q. The top e-mail on this page is
17 from Mr. LeBleu to Tracy Dyer, Doyle Maxie,
18 Brian Morel, copying Mr. Hoggan and Mr.
19 Cocalles. Do you see that?
20 A. Yes.
21 Q. Mr. LeBleu was drilling fluids
22 engineer for BP, right?
23 A. That's right.
24 Q. He had discussions with
25 Doyle Maxie about the use of the LCM as --
00410:01 material as a spacer?
02 A. Yes.
03 Q. In this e-mail, Mr. LeBleu
04 writes, "I don't think the pill can be held
05 and reused because of bacterial degradation
06 of the biopolymer." Did I read that
07 correctly?
08 A. Yes.
09 Q. And this relates to the
10 discussion we had before the break about
11 potential to beneficial reuse of the LCM
12 pills?
13 A. Right.

Page 411:06 to 411:22

00411:06 Q. Do you know when the

07 conversation first began about whether to use
08 the LCM spacer as a spacer?

09 A. I believe I've answered that
10 before. I think there was a -- in talking to
11 Leo Lindner, he said this was talked about --
12 it could have been the prior week or two or,
13 you know, whatever -- with our mud engineers
14 and with the BP well site leader.

15 Q. I was trying to get as precise a
16 timeframe as we can or you can provide.

17 A. That's all I -- that's all I
18 know.

19 Q. It may have been a week or two
20 before April 16th?

21 A. It could have been. I don't
22 have that information.

Page 413:20 to 415:01

00413:20 Q. Do you know how it was decided,
21 the nature of the mixture between the
22 Form-A-Set AK and Form-A-Squeeze, the volumes
23 of each in proportion to each other?

24 A. No, I don't.

25 Q. Was there any testing or
00414:01 decision-making done as to the propriety of
02 the proportion of each of those pills?

03 A. Not that I know of.

04 Q. Do you know whether there was
05 any testing or analytical criteria applied to
06 the quantity of Duo-Vis or barite added to
07 those LCM pills?

08 MS. SCOFIELD: Objection to form.

09 THE WITNESS: I don't know. I don't
10 know.

11 BY MR. HARTLEY:

12 Q. M-I has software that it
13 utilizes to construct or design LCM pills; is
14 that right?

15 A. For the Form-A-Set AK, yes.

16 Q. For the Form-A-Set AK. Do you
17 know whether that software was utilized by
18 Mr. Lindner or others at M-I in designing the
19 LCM spacer?

20 A. Not this spacer, as you -- as we
21 agreed to talk about it, no.

22 Q. It may have been originally
23 utilized in developing the Form-A-Set AK pill
24 that was initially put in the pit, but not
25 when it was going to be used as a spacer?

00415:01 A. That's correct.

Page 417:19 to 418:13

00417:19 Q. Is there any program software
20 modeling written guidelines regarding the
21 amount of Duo-Vis or barite that would be
22 added, if any?
23 A. Barite or Duo-Vis to?
24 Q. To the Form-A-Squeeze.
25 A. Form-A-Squeeze? You would add
00418:01 primarily just barite. And it can be
02 weighted up. And it has a viscosifier in it,
03 you know, that you can, you know, essentially
04 weight that pill up to -- I believe it's 16
05 and a half pounds per gallon.
06 Q. How is that calculation
07 performed by the M-I mud engineer?
08 A. By hand.
09 Q. That's simply based on the
10 weight of the LCM pill you want, and
11 calculate that and the amount barite you have
12 to add to get to that level?
13 A. That's correct, yes.

Page 424:01 to 424:11

00424:01 First, I'd like to ask you just
02 initial questions about Anadarko. Are you
03 aware of any involvement by Anadarko
04 concerning the displacement procedure,
05 developing the displacement procedure?
06 A. No.
07 Q. Are you involved -- are you
08 aware of any involvement by Anadarko in the
09 execution of the displacement procedure on
10 Macondo on April 20th?
11 A. No, I'm not.

Page 424:24 to 425:02

00424:24 Q. Well, let me ask you this way,
25 then. In your experience, is it normal to do
00425:01 a negative pressure test during a
02 displacement?

Page 425:04 to 425:05

00425:04 THE WITNESS: I have not -- I have not
05 done one like that.

Page 426:13 to 426:15

00426:13 Q. And, in fact, you've never seen
14 it done before in your experience; is that
15 correct?

Page 426:17 to 426:21

00426:17 THE WITNESS: That's correct.
18 BY MS. SCHNELL:
19 Q. Did you talk to others about
20 that concept after the incident on the
21 Macondo Well?

Page 426:23 to 427:20

00426:23 THE WITNESS: Just recently, I spoke to
24 Leo Lindner and several of our other
25 employees, project engineer types, and asked
00427:01 if we had ever done a displacement, you know,
02 or a -- or had the operator conducted a
03 negative test or had we ever parked the
04 spacer, you know, above the BOP. And no
05 one -- all of the people that I talked to
06 said they had -- they had never experienced
07 that.
08 BY MS. SCHNELL:
09 Q. They had not. And you said you
10 spoke to Mr. Lindner; is that correct?
11 A. Yes.
12 Q. And he has, I believe you said
13 yesterday, as many as 30 years experience?
14 A. No, I don't think Mr. Lindner
15 has. I'm not sure of his years of
16 experience. But I did speak to Mr. Lindner
17 and asked if we had ever done that at BP
18 before, and he indicated yes, on the Horizon,
19 and he said he believes it's maybe two other
20 times on prior wells.

Page 428:20 to 429:12

00428:20 Q. Do you know John LeBleu?
21 A. Yes, I do.
22 Q. Did he used to work for M-I?
23 A. He did.
24 Q. How long did Mr. LeBleu work for
25 M-I, if you know?
00429:01 A. I believe probably -- well, I
02 don't know the exact time, but probably
03 25 years or so.
04 Q. And Mr. LeBleu, at the time of
05 the incident on the Macondo, was BP's
06 drilling fluid specialist; is that correct?
07 A. That's what I understand, yes.
08 Q. And given that he had 25 years
09 of experience working for M-I, was Mr. LeBleu
10 familiar with M-I products, including
11 Form-A-Set and Form-A-Squeeze?

12 A. I believe he was, yes.

Page 430:11 to 430:16

00430:11 MS. SCHNELL: I'm going to give you
12 guys a copy to look at before I ask any
13 questions. But this came up yesterday. It
14 was used by one of the lawyers.
15 COUNSEL: It's Exhibit 1039?
16 MS. SCHNELL: Exhibit 1039.

Page 431:08 to 434:08

00431:08 Q. On that -- down in the bottom of
09 that -- of the page that you're holding, you
10 will see an e-mail from Doyle Maxie, dated
11 April 16, to John LaBleu. And it says -- I'm
12 going to show it you -- "John, we need to
13 have a conversation about these pills. They
14 are water-based, and they have dumped them on
15 Enterprise, but need clarification from BP as
16 to what we can and should do with them."
17 A. Yes.
18 Q. Did I read that correctly?
19 A. I believe you did, yes.
20 Q. And do you see on that e-mail
21 who is copied?
22 A. It looks like Brett Cocalles,
23 Brian Morel.
24 Q. And your understanding is that
25 Brett Cocalles was the well site leader on
00432:01 Macondo in April of 2010; is that right?
02 A. I don't know that.
03 Q. Do you know who -- what
04 Brian Morel's role was?
05 A. It's my understanding that
06 Brett Cocalles and Brian Morel are drilling
07 engineers that work for BP.
08 Q. Okay. And then --
09 A. Oh, I'm sorry.
10 Q. And then if you look for --
11 MS. SCOFIELD: He really needs to have
12 a copy of the document in front of him.
13 MS. SCHNELL: I'm sorry. Does anybody
14 have a copy of 1039 from yesterday?
15 MS. SCOFIELD: Maybe she could read it
16 off.
17 MS. SCHNELL: This is 1030. I can read
18 off of here. Here you go.
19 MR. TANNER: Thank you, Don.
20 MS. SCHNELL: Sorry, guys.
21 BY MS. SCHNELL:
22 Q. And above that, you will see
23 that Mr. LeBleu responds by e-mail dated

24 April 16th, still Friday, at 8:40 a.m. And
25 his response is to Doyle Maxie, with a copy
00433:01 to Brett Cocalis, Brian Morel, James Hoggan,
02 and Tracy Dyer.
03 A. Yes, I see that.
04 Q. And, again, the reference is
05 Water-based FAS Pills. In the first
06 paragraph, Mr. LeBleu states that he's
07 contacted James Hoggan, who is BP's
08 environmental specialist, who said that
09 "Since it has not been in the well, we will
10 have to send it in for disposal." Did I read
11 that right?
12 A. Yes.
13 Q. Okay. If we go up, then, to the
14 e-mail that is right before that one, and it
15 is from Doyle Maxie, Friday April 16th, at
16 9:17 a.m. to Leo Lindner. And Mr. Maxie
17 says, "Leo, had a discussion with John, and
18 he ran it by the Environmental group, and we
19 cannot dump them. The," which I assume is
20 supposed to be "they," "want to dispose if we
21 cannot use as spacers. I am checking on the
22 possibility of this option. Given the
23 water-based nature and the fact that we will
24 T&A, may not want to --" it says "us," but I
25 assume it's "use," "as spacer and dump." Did
00434:01 I read that correctly?
02 A. Yes.
03 Q. So on April 16th, Mr. Maxie is
04 raising a question as to whether or not the
05 LCM material would be appropriate to use as a
06 spacer, given its water-based nature and the
07 fact that the process is to T&A; is that
08 right?

Page 434:10 to 434:16

00434:10 THE WITNESS: I don't think he -- well,
11 I don't know about appropriate. I think he's
12 just. . .
13 BY MS. SCHNELL:
14 Q. He's just saying we may not want
15 to use it; is that right?
16 A. Exactly.

Page 435:12 to 436:17

00435:12 Q. If you turn to Tab D in your
13 binder?
14 A. D, did you say?
15 Q. "D" as in "dog." And if you
16 could flip for me to the M-I document with
17 Bates number 15966.

18 A. Can I pull this out of here?
19 Q. Sure.
20 A. Okay.
21 Q. And at the top of that page,
22 there's an e-mail from Leo Lindner dated
23 Saturday, April 17, at 2:42 p.m., and it's
24 addressed to Doyle Maxie. And again, the
25 subject line is same, Water-based FAS Pills.
00436:01 And it reads, "Doyle, talked to Brian Morel
02 about the issue, and he is for using it as a
03 spacer. Regards, Leo."
04 Is it your understanding that
05 Brian Morel approved the use of the LCM
06 material as a spacer in this displacement
07 process?
08 A. Yes.
09 MS. SCHNELL: I'd like to attach the
10 document which is M-I Bates No. 15966 as
11 Exhibit 2817.
12 (Exhibit 2817 was marked for the record.)
13 BY MS. SCHNELL:
14 Q. Is it also your experience, Mr.
15 Billon, that nothing can be pumped down the
16 hole without the operator's approval?
17 A. Yes.

Page 437:06 to 437:25

00437:06 Q. Let's back up a little bit. So
07 the spacer before it was weighted up, its
08 density was 14 pounds per gallon, right?
09 A. That's what I understand, yeah.
10 Q. And then it was weighted up, and
11 the weight was increased by 2 pounds per
12 gallon to 16; is that right?
13 A. That's correct.
14 Q. Okay. And what is your
15 understanding of the reason that that was
16 weighted up?
17 A. My understanding is that, I
18 guess, that is -- that is typical to weight
19 up the spacer, in this particular operation,
20 to about approximately 2 pounds per gallon
21 over the original mud weight, which was
22 14 pounds, I assume. And the purpose of that
23 is that over time, people have learned that
24 if they do that, it provides for a much
25 cleaner displacement.

Page 438:15 to 438:21

00438:15 Q. Okay. Let me ask you, then.
16 There's been some talk about the difference
17 between the weight of the LCM material at

18 16 pounds per gallon after it was weighted up
19 and the density of seawater, which I believe
20 is 8.6 pounds per gallon. Is that correct?
21 A. That's correct.

Page 439:25 to 440:04

00439:25 Q. Wouldn't it be obvious that a
00440:01 material of 16 pounds per gallon will settle
02 through and mix into a material, in this
03 instance, seawater, that's 8.6 pounds per
04 gallon?

Page 440:07 to 440:08

00440:07 Q. Assuming that they are stacked
08 vertically.

Page 440:10 to 440:13

00440:10 THE WITNESS: I would say -- I don't
11 know the circumstances, but some testing
12 would have to be done, you know, to show
13 that. But I couldn't say to what degree.

Page 447:12 to 447:16

00447:12 Q. All right. Did M-I receive a
13 test matrix from BP concerning the LCM
14 material that was going to be used on
15 April 20th, for the Macondo?
16 A. No, we did not.

Page 458:10 to 458:17

00458:10 Q. With respect to the LCM spacer
11 that was going to be used on Macondo as part
12 of the displacement job, are you aware of any
13 compatibility testing, during the course of
14 your research, of that particular material
15 and its interface with the particular
16 materials that were on the Macondo on
17 April 20th?

Page 458:20 to 458:23

00458:20 THE WITNESS: The combined materials is
21 what you're talking about? No, not other
22 than the testing that Leo Lindner did at the
23 rig site.

Page 459:15 to 459:18

00459:15 Q. And if there was any testing to
16 be done, wouldn't it be the role of the
17 operator -- in this instance, BP -- to
18 specify what tests are needed?

Page 459:20 to 459:21

00459:20 THE WITNESS: If they wanted to do some
21 testing, yes.

Page 469:15 to 474:16

00469:15 Q. I've handed you an exhibit that
16 I've marked 2819 for the deposition record,
17 and I'll represent to you that I printed this
18 out from the company's website a couple of
19 days ago. And I just want to go over some
20 materials from your company's website.

21 A. Okay.

22 Q. And in one of the tabs, a
23 company profile is listed, and I'm just going
24 to read the first paragraph of the company
25 profile and then ask you a question at the
00470:01 conclusion.

02 "With over 13,000 employees in
03 more than 75 countries around the world, M-I
04 SWACO is a vital part of the world's
05 hydrocarbon exploration and production
06 industry. We are the leading supplier of
07 drilling fluid systems engineered to improve
08 drilling performance by anticipating
09 fluids-related problems, fluids systems, and
10 specialty tools designed to optimize wellbore
11 productivity, production technology solutions
12 to maximize production rates, and
13 environmental solutions that safely manage
14 waste volumes generated in both drilling and
15 production operations." Did I read that
16 correctly, sir?

17 A. Yes.

18 Q. Is that an accurate summary of
19 the company's activities?

20 A. I would say it is.

21 Q. Okay. And further down on the
22 page, there's a paragraph from the website
23 stated -- entitled Drilling Fluid Systems and
24 Products. And I'm just going to read that
25 out loud again, sale drill. "This is the
00471:01 very foundation of our business. We have
02 continued to develop solutions for drilling
03 that help our clients maximize rate of
04 penetration, eliminate nonproductive time,

05 achieve --" my copy is cut off. "Achieve
06 quality" would be my guess. But "achieve"
07 something "performance objectives and obtain
08 quality data from the wellbore. We
09 strengthen our systems and products by
10 providing regionally and globally based
11 experts to support the application of M-I
12 SWACO technology and by developing new
13 technology and process solutions to optimize
14 client results."

15 With the exception of the word
16 that was cut off there, did I read that
17 accurately?

18 A. Yes.

19 Q. Is that an accurate statement of
20 M-I SWACO's abilities?

21 A. Yes.

22 Q. And in relation to the Macondo
23 252 and Deepwater Horizon drilling
24 activities, was M-I SWACO the expert that was
25 providing its client with drilling fluid
00472:01 systems and products?

02 A. We were the drilling fluids
03 company of your choice, providing the
04 services that we did.

05 Q. And did you provide regionally
06 and globally based experts to support the
07 application of M-I SWACO's technology?

08 A. Yes.

09 Q. And turning the page, there's a
10 paragraph entitled Waste Management. And
11 I -- we can read it for the record, but I
12 just want to ask you, basically, was one of
13 the services that M-I SWACO provided to BP
14 for Macondo 252 was assisting BP in waste
15 management activities?

16 A. Yes. But to be a little more
17 definitive on the -- what we categorize as
18 waste management, on Deepwater Horizon, we
19 were, I guess, involved in the drying of the
20 cuttings and being sure that you met your
21 obligations to the M-I synthetic-based fluid
22 on those cuttings.

23 Q. And that included providing
24 expert advice on whether the cuttings were
25 permissible for discharging overboard?

00473:01 A. Well, we provided a gentleman
02 there to run the tests, to collect the data
03 to let you know if you were in compliance or
04 not.

05 Q. And that would be the compliance
06 engineer supplied?

07 A. That's correct. Yeah.

08 Q. And that was Mr. Meche, at least
09 at the time of April 20, 2010?

10 A. Yes.

11 Q. Okay. The next tab in the -- at
12 the website that I printed, couple of them,
13 one was called Drilling Fluid Systems, and
14 the other tab was called Drilling Fluid
15 Products. Are both of those tabs -- do both
16 of those tabs from the website provide
17 information summarizing M-I SWACO's drilling
18 fluid systems and drilling fluid products as
19 they specifically pertain to the Deepwater
20 Horizon in April 2010?

21 A. Yes. I'd say yes.

22 Q. Obviously some -- not all
23 services described were provided, but these
24 are general descriptions of some of the
25 services provided to BP by M-I SWACO?

00474:01 A. Exactly. General descriptions.

02 Q. Right. So, for example, in the
03 drilling fluid systems' tab where it states
04 Solutions for all Drilling Applications, the
05 following statement, tell me whether it's an
06 accurate statement.

07 A. Where are you, now? I'm not --

08 Q. Where it says "Drilling." It's
09 the tab --

10 A. Yeah, I've got the page. I just
11 thought --

12 Q. Okay. I'm --

13 A. -- you were reading something on
14 the page.

15 Q. Right. Underneath where it says
16 Solutions for all Drilling Applications.

Page 474:20 to 474:24

00474:20 Q. It might be on the next -- flip
21 to the very last -- there you go.

22 A. Oh. The one that says
23 "Systems," right? Is that correct?

24 Q. Yeah, "Systems."

Page 475:05 to 476:15

00475:05 Q. I'm going to read out loud, sir.
06 "M-I SWACO leads the industry in engineering
07 drilling fluid systems and additives that
08 improve efficiencies, reduce costs, and
09 minimize HSE impact. We customize drilling
10 fluid systems and associated additives to
11 reduce NPT in the most demanding
12 applicationS, including HTHP --" that would
13 be high temperature, high pressure?

14 A. That's correct.

15 Q. "-- deepwater and depleted

16 wells. M-I SWACO is widely recognized for
17 developing solutions to for downhole
18 problems, from the simple to the complex. We
19 were the first to introduce cost effective
20 and high efficiency micronized barite
21 technology to water and oil-based drilling
22 fluids.

23 "A leader in R&D, we develop
24 drilling fluid systems for specific
25 applications, such as deepwater shale gas,
00476:01 and heavy oil extraction. Complementing our
02 drilling fluid systems are specialized
03 additives that optimize efficiencies by
04 targeting performance-impacting downhole
05 problems that increase costs." Did I read
06 all of that accurately, sir?

07 A. Yes

08 Q. And are all those accurate
09 statements?

10 A. Yes, they are.

11 Q. Turn from that to the contract
12 between M-I SWACO and BP, which is
13 Exhibit 2804, that you looked at yesterday,
14 and I just want to go over a couple of items
15 on that contract.

Page 476:25 to 477:01

00476:25 Q. Okay. Reading in the General
00477:01 Conditions portion of the contract --

Page 477:04 to 477:07

00477:04 THE WITNESS: Well, that's what he's
05 telling us now.
06 I'm going to wait until you tell me
07 what page.

Page 477:09 to 478:02

00477:09 Q. Right. I'm going to tell you
10 that right -- momentarily. In Exhibit 2804,
11 the M-I SWACO-BP contract, looking in the
12 General Conditions of the Contract, Section 2
13 specifically at Section 4 -- Section 4, which
14 is entitled Contractor's General Obligations.
15 So it will be in the front part of the
16 contract?
17 A. Does yours have the M-I number
18 on bottom, Bates number?
19 Q. I don't have the -- we're
20 looking at different versions, so you'll have
21 to bear with me. It's page 6 of 43, is

22 another identifying feature. And it's near
23 the front, sir.
24 A. Okay.
25 Q. The general conditions.
00478:01 A. Yeah. I just -- I'm getting
02 there.

Page 478:04 to 478:04

00478:04 THE WITNESS: Yes, I've got it.

Page 478:06 to 479:19

00478:06 Q. Right. Contractor's General
07 Obligations. You see that, sir?
08 A. Yes.
09 Q. Okay. And I'm going to read out
10 loud Section 4.1. "Contractors shall, in
11 accordance with Section 3, carry out all of
12 its obligations under the contract and
13 provide all management, supervision,
14 personnel, materials and equipment," paren,
15 "except materials and equipment specified to
16 be provided by company," end paren, "plant,
17 consumables, facilities, and all other
18 things, whether of a temporary or permanent
19 nature, so far as the necessity for providing
20 the same is expressed with reasonable clarity
21 in the contract."
22 Section 4.2: "Contractors shall
23 carry out all of its obligations under the
24 contract and shall execute the work with all
25 due care and diligence and with the skill to
00479:01 be expected of a reputable contractor
02 experienced in the types of work to be
03 carried out under the contract."
04 And Section 4.3: "Contractors
05 shall take full responsibility for the
06 adequacy, stability, health, safety, and
07 environmental protection of all its
08 operations and methods necessary for the
09 performance of the work and shall keep
10 strictly to the provisions of Section 7,
11 Health, Safety, Security, and Environment."
12 Sir, did I read Sections 4.1,
13 4.2, and 4.3 of the contract accurately?
14 A. Yes, you have.
15 Q. And do you understand that those
16 were M-I SWACO's general obligations to BP in
17 the Gulf of Mexico and particularly with
18 respect to Deepwater Horizon in the drilling
19 operations at Macondo 252?

Page 480:04 to 489:22

00480:04 Q. Would you agree, sir, that
05 Sections 4.1, 4.2, and 4.3 were among the
06 general obligations of M-I SWACO toward BP as
07 they pertain to operations at Macondo 252
08 aboard the Deepwater Horizon?

09 A. They are part of this contract,
10 and we signed and, you know, executed this
11 contract with BP.

12 Q. And you understood these were
13 your -- that is, M-I SWACO understood these
14 were their obligations?

15 A. Yes.

16 Q. If we'll turn to the Scope of
17 Work portion of the contract, which is -- at
18 least in the Scope of Work section is page 36
19 of 49 that I'm going to reference next.

20 A. Okay. Just give me a second to
21 get there.

22 Q. Sure.

23 A. 36, you say?

24 Q. Yeah, page 36 of 49 in the Scope
25 of Work. And I'll direct your attention to

00481:01 Section 9.3.15. Are we there?

02 A. Yes.

03 Q. And I'll read it out loud.

04 A. Okay.

05 Q. The lead sentence for this is on
06 the proceeding page. It's Section 9.3. "The
07 lead mud engineer is the primary liaison with
08 the company and shall be competent in all
09 required skill sets necessary to support the
10 activities listed herein." And then looking
11 over at 9.3.15, do you see the words
12 "Monitors company's PFM waste stream
13 management plan. This includes daily
14 documentation of date, time, quantity,
15 quality of material discharged, entry of
16 solids control and waste management data into
17 contractor's database and computer program
18 for the record-keeping on the rig"? Did I
19 read all of that accurately?

20 A. Yes, you did.

21 Q. That would -- in the case of
22 Deepwater Horizon on April 20, that would be
23 Mr. Leo Lindner who was the mud engineer to
24 provide that activity?

25 A. I believe he was categorized as
00482:01 lead mud engineer, yes.

02 Q. And looking up the page to
03 Section 9.3.7, Mr. Lindner would have been
04 responsible for executing -- or -- excuse me,
05 for "Accurately recording and documenting the
06 solid and fluid waste streams produced from

07 the well. Contractor rig site personnel will
08 work proactively with company and third-party
09 personnel to minimize waste disposal volumes
10 and costs." Did I read that accurately?

11 A. Yes.

12 Q. So in -- do I understand your
13 testimony from previous questioners, your
14 responses to those, that among M-I SWACO's
15 duties out at Deepwater Horizon would be to
16 work proactively to minimize waste?

17 A. Yes.

18 Q. Would the decisions to use LCM
19 as spacer in lieu of constructing a new
20 spacer be consistent with that obligation
21 under the contract?

22 A. I believe so.

23 Q. Turning a few more pages and
24 just reading -- it's page 39 of 49. And I'll
25 read 9.6.15 out loud. "Manages all
00483:01 completions activities, including wellbore
02 displacement, cleanup, tool makeup, tool
03 operation, packer fluid, spacers and pill
04 construction."

05 And with the caveat that this
06 paragraph is within the completion engineer's
07 scope of work, would you agree with me, sir,
08 that one of the jobs of M-I SWACO out on the
09 rig on April the 20th was to manage spacer
10 construction?

11 A. This -- I think this is talking
12 about the completion engineer's duties, and
13 we're talking here -- we're talking about
14 wellbore displacement. We're talking about
15 spacers probably prior to putting completion
16 fluids in the wellbore.

17 Q. I understand that. I understand
18 9.6.15 is in the section about --

19 A. Yes.

20 Q. -- the completion engineer. But
21 my question is, was the makeup -- the
22 management of construction of the spacer in
23 April 2010, or April 20th, 2010, part of
24 Mr. Lindner's job as mud engineer?

25 A. To put it together? Yes. Yes.

00484:01 Q. Now, you understand that at the
02 very beginning of this deposition yesterday,
03 Mr. Bruno showed you Exhibit 2802, which was
04 Defendant M-I LLC's responses to this
05 30(b)(6) deposition notice?

06 A. Yes.

07 Q. And you understand that you've
08 been designated to speak for the corporation
09 on Topics 10, 11, 12, and 23(IV)?

10 A. Can I have another -- are we
11 done with the contract here?

12 Q. Yes, we're done with the
13 contract.
14 A. Let me put that away.
15 Q. And I'll repeat the number so
16 you won't have trouble following.
17 Okay. You understand that
18 you're designated to speak for the company
19 for Topics 10 -- for the information
20 available to M-I SWACO for the Topics 10, 11,
21 12, and then 23(IV)? Among others, but those
22 specifically?
23 A. 10, 11, 12 -- I'm sorry, I'm not
24 writing this down, so --
25 Q. 10, 11, 12, and then 23(IV).
00485:01 A. I just can't remember the
02 numbers.
03 Q. That's why I have them written
04 down.
05 A. Yes.
06 Q. Okay. And you understand
07 generally those topics have to do with the
08 subject of the LCM use as a spacer?
09 A. Which topic?
10 Q. Actually, all of those topics
11 have some bearing on the activities of
12 constructing a spacer in the time period that
13 we've been discussing.
14 A. I couldn't say that. I'd have
15 to go back through them and -- I mean, you
16 said that, but I couldn't say that for sure.
17 Q. Okay. Well, take a look, then,
18 at 10, 11, 12, and 23(IV) and just make sure
19 that I'm right, that generally speaking,
20 you've been designated to speak for the
21 corporation with regard to the use of LCM as
22 spacer on or about April 20th, 2010.
23 A. Okay. I want to just -- let me
24 just --
25 Q. Sure. No problem. Take your
00486:01 time.
02 A. (Reviews document.) Okay. I'm
03 ready.
04 Q. Can you answer the question,
05 then?
06 A. Sure. Well, go ahead and ask --
07 can you ask the question again?
08 Q. Yeah. You agree that you are
09 designated as the spokesman or the -- you're
10 speaking for the corporation, I should say,
11 generally on the topic of the use of LCM as a
12 spacer on or about April 20th, 2010, that's
13 included in those topics?
14 A. Yes, sir.
15 Q. Okay. So I'm asking you a bunch
16 of these questions, and I just want you to

17 have highlighted in your mind that you're
18 speaking on behalf of M-I SWACO and giving
19 M-I SWACO's answer.

20 Yesterday you testified that M-I
21 relies on BP to provide it with information
22 it needs to provide its goods and services to
23 BP. Do you recall that?

24 A. Yes.

25 Q. Do you recognize that M-I is
00487:01 relied upon by BP for M-I's expertise?

02 A. Yes.

03 Q. And do you agree that M-I's
04 expertise offered -- provided and offered to
05 BP includes engineering the mud, the drilling
06 fluid to be used in drilling a well such as
07 Macondo 252?

08 A. Yes.

09 Q. And you -- and when you say
10 "you," I mean M-I SWACO. You understand
11 that?

12 A. Yes.

13 Q. And that you recognize that M-I
14 SWACO's expertise includes putting together
15 LCM pills in general?

16 A. Yes.

17 Q. And that M-I considers itself an
18 expert in putting together LCM pills?

19 A. Yes.

20 Q. Do you agree that lost returns
21 are an expected consequence in the drilling
22 of wells?

23 A. Yes.

24 Q. Do you agree that lost returns
25 are particularly anticipated in exploratory
00488:01 wells?

02 A. In some, yes.

03 Q. And why is it that returns are
04 even more to be anticipated in an exploratory
05 well as opposed to another well?

06 A. Well, I believe, you know, just
07 as the word implies, you're exploring. You
08 don't know -- you know, these are what people
09 typically call wildcat wells for that reason.
10 I guess -- I would assume that BP has a lot
11 less information, you know, on an exploratory
12 well than you would after you've drilled
13 several, you know, within the field.

14 Q. And I recall from yesterday on
15 the bonus schedule in the BP-M-I SWACO
16 contract that there was sort of a scale of
17 awards or penalties for loss of fluids. And
18 there was a higher bracket for exploratory
19 wells than for the other types of wells
20 anticipated, right?

21 A. You're right.

22 Q. And based on what you know from
23 review of the materials and talking to M-I
24 SWACO personnel, the amount of LCM used
25 during the Deepwater Horizon's time on
00489:01 Macondo 252 was not particularly unusual;
02 fair to say?
03 A. No. Given the conditions and,
04 you know -- no.
05 Q. That is fair to say?
06 A. It's fair to say, yes.
07 Q. And you recall you were asked
08 some questions by the United States attorney
09 about whether the maximum amount of LCM was
10 placed aboard the Deepwater Horizon. Do you
11 read that discussion?
12 A. Yes.
13 Q. Do you remember the document
14 that the attorney provided to you?
15 A. Yes.
16 Q. Okay. I'm going to show you
17 Exhibit 2809, and I'm going to turn to the
18 second page and just ask you to read the
19 paragraph at the end of that page. And
20 you'll notice that I've highlighted a
21 particular few words at the end of that
22 paragraph.

Page 490:01 to 502:17

00490:01 Q. Just read it silently.
02 A. ((Reviews document.)) Okay.
03 Q. Now that you've read that,
04 following up on the government's questions
05 yesterday, is it fair to say that what that
06 document is referring to as maximum LCM is in
07 connection with available space to store LCM
08 material?
09 A. You're correct.
10 Q. Okay. One of the reasons --
11 fair to say that one of the reasons that M-I
12 had a drilling fluid specialist out on
13 Deepwater Horizon was because lost returns
14 were an anticipated and reasonable --
15 reasonably anticipated possibility, correct?
16 A. I wouldn't say that that's the
17 only reason that they had drilling fluid
18 specialists out there, but -- so I don't
19 understand your question.
20 Q. Yeah. Fair enough. I agree
21 with you. One of the reasons that M-I SWACO
22 had personnel available to provide expertise
23 to BP in the operation of the well was that
24 M-I SWACO offered expertise in anticipating
25 the possibility of lost returns?
00491:01 A. Or -- I don't think we have

02 expertise in anticipating lost returns. We
03 have the expertise in treating those losses
04 when they occur or treating to -- ahead of
05 time to -- well, not to anticipate, but to --
06 I guess I'm trying to think of a more
07 accurate word.

08 Q. To pre-cure?
09 A. Yeah, to pre-cure, I guess it
10 would be. Yeah.

11 Q. That's "pre" hyphen "cure"?
12 A. Yeah.

13 Q. Okay. In the case of Macondo
14 252 in the drilling fluids program that M-I
15 SWACO put together for BP, M-I SWACO designed
16 -- was the designer of the Rheliant drilling
17 fluid, correct?
18 A. Yes. That is a proprietary
19 system that we reload in the Gulf of Mexico.

20 Q. And M-I SWACO is a specialist in
21 the knowledge of the characteristics of that
22 particular product, correct?
23 A. Yes.

24 Q. And M-I SWACO knows the chemical
25 product of -- excuse me, the chemical
00492:01 properties of that drilling fluid called
02 Rheliant?
03 A. Yes.

04 Q. In fact, that drilling fluid, as
05 you say, is a proprietary, right?
06 A. Yes.

07 Q. And M-I SWACO holds patents on
08 that material?
09 A. I believe we do, yes.

10 Q. And the same question for the
11 Form-A-Set AK and the Form-A-Squeeze
12 materials. Those are specialized products
13 that are in the repertoire of M-I SWACO's
14 drilling fluids products, correct?
15 A. Those are products in our
16 product line, yes.

17 Q. And M-I SWACO is the specialist
18 in the knowledge of each of those products,
19 correct?
20 A. Yes, you could say that.

21 Q. And, again, those are
22 proprietary?
23 A. What is proprietary?
24 Q. That is, Form-A-Set AK and
25 Form-A-Squeeze.

00493:01 A. Yes, they are.
02 Q. And both -- for both materials
03 both products, or both products, the nature
04 of them is subject to patents in M-I SWACO's
05 name?
06 A. Yes. I believe that was

07 attached in some of the documentation that we
08 had received.

09 Q. Does M-I SWACO believe that it
10 was reasonable for Brian Morel to rely upon
11 M-I SWACO's expertise in the areas in which
12 M-I SWACO offered expertise?

13 A. I think it's his position to
14 take our suggestions or recommendations and
15 to make that decision on whether or not, you
16 know, they make sense to him or they fit into
17 his -- you know, into the operation. Again,
18 we're only supplying just a part of that
19 operation, and only BP knows, you know, the
20 big picture, I should say.

21 Q. Understood. But people like
22 Brian Morel -- and I'm not picking him out in
23 particular, although I will go through the
24 others involved. M-I SWACO understands that
25 Brian Morel is going to rely upon M-I SWACO
00494:01 for its particularized expertise in the
02 fluids, including the LCM materials?

03 A. I think he would rely on our --
04 yeah, again, on our recommendations and
05 suggestions, along with BP's drilling fluids
06 specialists, or drilling fluids engineers, as
07 they're called.

08 Q. Like John LeBleu?

09 A. Yes.

10 Q. Same question for Don Vidrine,
11 Mark Hafle, and for that matter, John LeBleu,
12 you'd give the same answer for each of those
13 gentlemen?

14 A. Yes.

15 Q. Does M-I SWACO believe that the
16 combination of the Form-A-Set AK and the
17 Form-A-Squeeze with the additives that you've
18 discussed earlier made a suitable LCM -- that
19 made a suitable spacer?

20 A. Yes, we do.

21 Q. And your view -- that was true
22 between April 16th and April 20th, 2010?

23 A. Yeah. Whenever the decision was
24 that we made, you know, to -- well, that BP
25 made to go ahead with it.

00495:01 Q. Okay.

02 A. Yes.

03 Q. BP ultimately went ahead with
04 it.

05 A. Right.

06 Q. But M-I SWACO's recommendation
07 was to use that LCM as a spacer, correct?

08 A. Well, let's go back. It was our
09 suggestion. We -- and all of the e-mails
10 support that, that we made a suggestion to
11 BP. And I think you'll find in one of the

12 e-mails Doyle Maxie said: It's up to you
13 guys. If you don't want to use it, we'll
14 dispose of it.

15 Q. Okay. We'll talk about that --
16 A. Okay.

17 Q. -- in a minute. But that was
18 the view, that the suggestion was made that
19 that was a suitable spacer by M-I SWACO in
20 the period April 16th to April 20th, correct?
21 A. Right. As far as we could see,
22 and, you know, from what we knew about the
23 operation at the time.

24 Q. And from what you knew about the
25 materials to be combined, that's --

00496:01 A. Right.
02 Q. -- what you believed then?
03 A. That's right.
04 Q. And today, June 2011, does M-I
05 SWACO still maintain that view; that is, that
06 the LCM pills combined made a suitable spacer
07 with the additives that you've discussed?
08 A. Yes.
09 Q. Mr. Lindner, out on the rig,
10 tested the compatibility of those materials?
11 A. I explained that to you, yeah,
12 the test that they did. He combined the
13 materials, checked the rheology, and, you
14 know, made some adjustments, to be sure that
15 it was suitable, you know, rheologically for
16 a spacer.

17 Q. And you mentioned a little while
18 ago called VAN 35 rheometer?
19 A. It's a FANN or -- there are
20 many -- there are several test rheometers,
21 but FANN is the manufacturer's name, but it's
22 a 35 rheometer, yes.

23 Q. And can you spell that just so
24 we'll have an accurate record?
25 A. R-h-e-o-m-e-t-e-r.

00497:01 Q. And the manufacturer name?
02 A. FANN, F-A-N-N, 35.
03 Q. If I told you I thought it was
04 V-A, and then would you agree or disagree?
05 It's either one? But you think it's FANN?
06 A. Well, it is FANN. I --
07 Q. Okay. It's your business,
08 right?
09 A. Yeah. No, I know it is.
10 Q. Okay. The displacement
11 procedure that was discussed earlier and is
12 the subject of a number of different exhibit
13 numbers, you've already told us how that --
14 how M-I SWACO understands that came about.
15 That procedure called for the base or bottom
16 of the spacer material to be above the BOP,

17 did it not?
18 A. That's what he says.
19 Q. And, in fact, the procedure
20 called for the bottom of the spacer material
21 to be -- to land 500 feet above the BOP,
22 right?
23 A. I'm not sure if that's the case.
24 Again, like I didn't do the calculations on
25 the strokes.

00498:01 Q. Okay. Well, just take a quick
02 look at -- for -- to refresh your memory, of
03 Exhibit 967, Item 6 under displacement part,
04 just to refresh your memory about where the
05 displacement procedure provided for the base
06 of the LCM to be --
07 A. Yeah, I see it. 500 feet past
08 the BOP stack.
09 Q. So that's above the BOP stack?
10 A. Yes. That's right.
11 Q. And in the displacement
12 procedure -- and I'm asking this kind of
13 generally -- you see that the mud engineer
14 and the compliance engineer each have roles
15 during the displacement procedure, correct?
16 A. Yes.
17 Q. And I think you told us
18 yesterday that the mud engineer -- in this
19 case, Mr. Lindner -- wasn't responsible for
20 monitoring the pumps or the pump strokes,
21 correct?
22 A. That's correct. He doesn't run
23 the pumps.
24 Q. Based on your experience with
25 drilling rigs, who do you understand to be
00499:01 actually running the pumps and monitoring the
02 counter of pump strokes?
03 A. Based on my experience, of
04 course, the drilling contractor would run the
05 pumps. I'm sure they would monitor the
06 strokes, along with BP.
07 Q. And the monitoring of pump
08 strokes, that's part of the calculations that
09 Mr. Lindner made in preparing the
10 displacement procedure; that is, pump strokes
11 provide information --
12 A. That's correct.
13 Q. -- on where the materials go in
14 the drill string?
15 A. That's correct.
16 Q. Now, let's talk a bit about the
17 size of the spacer. You testified that 200
18 barrels is a typical size of a spacer for
19 this displacement operation, correct?
20 MS. SCOFIELD: Objection to form.
21 THE WITNESS: I think I said 200 could

22 be --
23 BY MR. HAYCRAFT:
24 Q. Plus or minus?
25 A. Plus or minus, yes.
00500:01 Q. Okay. Just -- plus or minus 200
02 is typical, right?
03 A. Yes.
04 Q. 425 may be atypical, correct?
05 A. It may be.
06 Q. Okay. Is there a reason for a
07 minimum size of a spacer? That is, for the
08 purpose of the spacer.
09 A. I think we've found, based on
10 experience over time, especially in these
11 large volumes, you know, of the riser -- I
12 should say, large volumes but large internal
13 diameters, you know, when you're pumping the
14 fluid up, it does require, and we've found
15 overtime, that 200 barrels of -- you know, or
16 more is probably necessary to get the most
17 efficient displacement.
18 Q. Okay. So would it be fair,
19 then, to say at the spacer in this context
20 and this size of riser should be at least
21 200 barrels?
22 A. Give or take, yes.
23 Q. So if Mr. Lindner prepares a
24 spacer that is 425 barrels, the 425 barrels
25 aspect of that does not exceed some parameter
00501:01 that M-I SWACO employs?
02 A. No, it doesn't.
03 Q. And that the larger the spacer
04 does not present any detrimental aspect to
05 the function of the spacer material, correct?
06 A. No, it doesn't.
07 Q. Okay. We're going to look at
08 Exhibit 2813 from yesterday. And what I
09 really want to ask you first is, apparently
10 on -- at some point prior to May the 11th, BP
11 asked M-I SWACO to do its own search and
12 investigation and provide answers to some
13 questions to BP, correct?
14 A. Yes.
15 Q. And this was following the
16 disaster on April 20th, correct?
17 A. Correct.
18 Q. And BP wanted to know everything
19 that M-I SWACO could provide by way of
20 information about the spacer, correct?
21 A. Well, and other things, yeah.
22 Q. But including the spacer?
23 A. Yeah. Correct.
24 Q. And you personally, you,
25 Mr. Billon, took part in the project of
00502:01 gathering the information?

02 A. Yes, I did.
03 Q. And was M-I SWACO -- did M-I
04 SWACO offer BP its full cooperation in that?
05 A. Yes, we did.
06 Q. Did you hold back anything?
07 A. No, we did not.
08 Q. Did you do a reasonable search
09 for all the e-mails and documents that
10 pertained to that --
11 A. Yes, we did.
12 Q. -- to that riser displacement
13 operation?
14 A. Yes, we did.
15 Q. And you understood that BP's --
16 BP, itself, wanted to know everything it
17 could about all the spacer issues, correct?

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00502:23 Q. Let me try that one again. Did
24 you understand, from your point of view at
25 M-I SWACO, that BP wanted everything you had
00503:01 and not to hold back anything?
02 A. When you say "anything we had" --
03 Q. Yeah. Anything you had on the
04 subject of that displacement operation and
05 the decisions regarding the spacer.
06 A. We were supplied a list of items
07 that BP would like to have, and, again, we
08 gave everything we had with regards to those
09 items requested.
10 Q. Did you do a reasonable search
11 of your e-mails -- of your company's internal
12 e-mails that pertained to this subject
13 matter?
14 A. Yes, we did.
15 Q. Look at Exhibit 2814. And was
16 the -- was the work product that M-I SWACO
17 then provided to BP in connection with their
18 questions that's contained in that exhibit,
19 2813?
20 A. Yes, it was.
21 Q. Okay. And that included the
22 string -- or several strings of e-mails from
23 around April the 16th, moving forward to
24 April 20th?
25 A. I believe you're correct.
00504:01 Q. Okay. We're going to -- I know
02 we've looked at those in numerous iterations,
03 and we're going to do it again with
04 Exhibit 2814.
05 A. Okay. Let Denise get hers
06 pulled out here.

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00504:16 Q. But you sort of stepping back
17 and sort of having looked at these e-mails
18 fairly thoroughly over the last day and a
19 half, and I'm sure for you before that, the
20 first written communication that we see an
21 e-mail record is dated April 16th in the
22 morning from Doyle Maxie to John LeBleu,
23 correct?
24 A. I don't -- let me go back and --
25 Q. And I'll show you --
00505:01 A. I don't -- I don't have the one
02 from --
03 Q. Okay. Let's look at --
04 A. Unless I back up. Maybe I have
05 to go to the back of the document to -- okay.
06 I think I'm with you.
07 Q. And just in case we're --
08 A. This is -- I'm with you. I've
09 got it now.
10 Q. Good. And I just want to verify
11 that the e-mail that starts, "John, we need
12 to have a conversation about these pills,"
13 which is dated Friday, April 16th, 2010, at
14 8:04 a.m., is -- as far as M-I SWACO is
15 concerned, that's the earliest written
16 communication M-I SWACO has concerning this
17 issue of the combination of the LCM as a
18 spacer?
19 A. I'm not -- I don't remember the
20 dates exactly, so I can't be sure that that
21 is the first one, but. . .
22 Q. Well, this is important, and I
23 want you to take your time, but --
24 A. Okay.
25 Q. I think over -- certainly
00506:01 yesterday and today and then before that when
02 we were all preparing for this deposition,
03 we've looked at these numerous times. I need
04 to know M-I SWACO's sworn testimony of
05 whether that April 16th, 8:00 a.m.
06 communication is the first writing known to
07 M-I SWACO regarding what's to be done with
08 the LCM pills that had been made up earlier
09 on the Deepwater Horizon.
10 A. Okay.

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00506:12 THE WITNESS: I couldn't tell you right
13 at the -- at this moment. I would have to go
14 back and -- again, I'm not -- I never did
15 look at them that way. I've looked at the
16 e-mails, but, again, I just don't know

17 exactly which one was the first one.

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00506:19 Q. Okay. Well, let me ask this,
20 then. Do you have -- do you know of any
21 e-mails before April 16th at 8:00 a.m. that
22 deal with the disposition of the LCM
23 materials that had been made up on the
24 Deepwater Horizon in April 2010?

Page 507:01 to 507:03

00507:01 THE WITNESS: And, again, I haven't put
02 these in a chronological order and looked at
03 the dates, so I couldn't say precisely.

Page 507:05 to 508:19

00507:05 Q. Well, let me -- let me ask,
06 because my time is very limited.
07 A. Okay.
08 Q. If, in reading this transcript,
09 you learn of an earlier e-mail that was not
10 provided in response to the deposition
11 production of documents request, and there is
12 an earlier e-mail that M-I SWACO has in its
13 possession that predates April the 16th at
14 8:00 a.m., I would like you to note that in
15 your corrections for this transcript.
16 A. Fair enough. We can do that.
17 Q. Right. In looking -- and I'm on
18 Exhibit -- I'm switched to 2810. Or I think
19 I've switched. Here's 2810. It's another
20 string that very bottom e-mail, the very
21 first e-mail in the string starts with
22 Doyle Maxie e-mailing to John LeBleu at
23 8:04 a.m. on April 16th, 2010. So I'm going
24 to start at the bottom and work my way up in
25 time for this exhibit. Do you see the first
00508:01 e-mail --
02 A. Yes.
03 Q. -- says, "John, we need to have
04 a conversation about these pills."
05 A. Yes.
06 Q. All right. And then at least in
07 this e-mail string, John LeBleu replies to
08 Doyle Maxie at 8:40, 36 minutes later, and
09 says he's contacted James Hoggan, and he says
10 that since it -- "it" meaning the LCM
11 material -- has not been in the well, we will
12 have to send it for disposal. That was John
13 LeBleu's reply to Doyle Maxie, right?

14 A. Yes.
15 Q. So at that point in time, at
16 8:40 a.m., you can tell that BP -- M-I SWACO
17 can tell that it's BP's intent at that point
18 in time to send the unused LCM to the beach,
19 right?

Page 508:24 to 509:16

00508:24 Q. Did you understand my question?
25 A. And I hate to make you repeat it
00509:01 again, but I just want to be sure I
02 understand. I don't quite understand.
03 Q. Okay. Let's try again. You see
04 the words on paper here in the e-mail from
05 John LeBleu to -- returning -- you see it's a
06 reply to his e-mail about --
07 A. Right. I understand that.
08 Q. -- conversation. "And he says
09 since it has not been in the well, we will
10 have to send it in for disposal." Do you see
11 that, sir?
12 A. Yes.
13 Q. And that indicated to
14 Doyle Maxie that BP, meaning John LeBleu, at
15 that point in time, believed the material had
16 to be sent to the beach, correct?

Page 509:20 to 509:24

00509:20 THE WITNESS: He -- all he's saying is
21 that he talked to James Hoggan, and if it --
22 since it had not been in the well, it would
23 have to be sent in for disposal. That's the
24 way I read it.

Page 510:01 to 510:04

00510:01 Q. And that's what that means.
02 Those words mean BP, Mr. LeBleu, at that
03 point in time, was proposing that the
04 material be sent to the beach for disposal?

Page 510:07 to 510:07

00510:07 THE WITNESS: I don't. . .

Page 510:09 to 517:24

00510:09 Q. You don't know?
10 A. I don't see that. I mean, I --
11 that's not the way I read it.

12 Q. Tell me again how you read it.
13 A. It says, "I contacted
14 James Hoggan, BP environmental specialist,
15 and he said that since it has -- it has not
16 been in the well, we will have to dispose --
17 we will have to send it in for disposal."
18 All he's saying, if it hasn't been in the
19 well, you'll have to send it in for disposal.
20 Q. Okay. Then let's turn to the
21 next e-mail up. And this one is from
22 Doyle Maxie to Andrew -- is it Wild or Wilde?
23 A. Wilde.
24 Q. Wilde. Okay. So in this
25 string, the very next e-mail is same date,
00511:01 Friday, April 16th, at 8:56 a.m., correct?
02 A. Yes.
03 Q. Okay. And just looking at the
04 sentence in the middle of that short e-mail,
05 it says, "Can we or would you recommend them
06 to be used as spacers for displacement?" Did
07 I read that right?
08 A. Yes.
09 Q. Okay. And the "we" -- this is
10 an internal e-mail, not outside to BP. This
11 is within M-I SWACO, right?
12 A. It is.
13 Q. Okay. So the internal
14 discussion at this point is: What can we,
15 M-I SWACO, recommend to BP, right, with
16 regard to those LRM pills?
17 A. That's correct.
18 Q. Okay.
19 A. That's what it says.
20 Q. M-I SWACO is vetting that idea
21 among the personnel in the company, right?
22 A. Right.
23 Q. Okay. And then we go up one
24 more to Friday, April 16th at 9:22, just a
25 half hour later. You see Andrew Wilde is
00512:01 communicating with Doyle Maxie, right?
02 A. Right.
03 Q. And he says, among other things,
04 "If you have not added the XL --" XL would be
05 the cross-linking additive?
06 A. That's correct.
07 Q. "If you've not added the XL to
08 the fluid, it should not set up, so that
09 would be a great option." Do see that?
10 A. Option, yes.
11 Q. Great option. That's what
12 Andrew Wilde was telling Doyle Maxie, right?
13 A. Right.
14 Q. Okay. And we go up one more,
15 and you see -- again, this is an internal
16 e-mail. Oops. Well, I'll -- I skipped one,

17 but now I see I have skipped it. We're now
18 on the front page of Exhibit 2810, and we're
19 going chronologically.

20 A. Okay.

21 Q. The next e-mail is April the
22 16th at 9:25 a.m. from Andrew Wilde to
23 Doyle Maxie again. And it says, "My
24 suggestion would be to go for it." From M-I
25 SWACO's standpoint, what does that sentence

00513:01 mean, "My suggestion would be to go for it"?

02 A. We made the suggestion that you
03 could use this -- we could present this to BP
04 and use this as a spacer.

05 Q. Okay. And then moving right
06 along to the next point in time, Friday,
07 April 16th at 9:29 a.m., we see another
08 internal e-mail among M-I SWACO people,
09 right?

10 A. Yes.

11 Q. And Doyle Maxie tells his
12 colleagues, "Gentlemen, BP will not let us
13 dump the water-based version of FAS and the
14 FAS AK. I checked with Andrew about using --
15 about using as displacement spacer and then
16 go overboard after circulating it through
17 wellbore, and he says okay. What are your
18 thoughts?" Obviously the internal discussion
19 continues, right?

20 A. Exactly. Exactly.

21 Q. And the internal decision is to
22 make a suggestion to BP at this point that
23 it's M-I SWACO's view that putting the --
24 using the LCM as a spacer and then
25 discharging overboard is a good suggestion?

00514:01 A. Yes, at this point, and then
02 Doyle will continue to vet things out with
03 the remaining people of the team, and when he
04 comes together with all of his con- --
05 either -- ideas or whatever it may be, then
06 he would present that to BP. And I think he
07 did that.

08 Q. And then it's up to BP whether
09 to accept that suggestion?

10 A. You're right.

11 Q. But the team of people
12 that was involved at M-I SWACO in evaluating
13 that proposal included Timothy Armand,
14 Andrew Wilde, Jamie Manuel, J.R. Smith, and
15 then ultimately Leo Lindner, correct?

16 A. Yes.

17 Q. And it also included Doyle Maxie,
18 correct?

19 A. Well, that's what I was going to
20 say, you left out one.

21 Q. Yeah, I left out a keeper.

22 A. The one you were talking about.
23 Q. Yeah, the project manager.
24 A. Yeah.
25 Q. And if you combine those
00515:01 gentlemen's experience in the makeup of
02 spacers and the constitution of LCM and the
03 properties of drilling fluids, that level
04 of -- those years of experience would add up
05 to probably more than 100 years of combined
06 experience in those materials?
07 A. More than likely. More than
08 likely.
09 Q. Okay. And the oper- -- you saw
10 the e-mail that talked about whether
11 operational issues had been considered. You
12 know what I'm talking about?
13 A. Um-hum (affirmative response).
14 Q. And those operational issues
15 that were considered was whether the combined
16 LCM as a spacer would have any detrimental
17 clogging effect on the tool to be used to
18 flow the material into the wellbore, right?
19 A. Yes.
20 Q. And that tool, in that e-mail
21 was thought perhaps to be a stinger at the
22 end of the drill string?
23 A. Yes.
24 Q. Is that a typical tool for the
25 application in a displacement procedure of
00516:01 the fluids, the spacer, the seawater, the
02 displacement of the mud?
03 A. I don't know if it's typical,
04 but it could be used.
05 Q. But at any rate, the orifices in
06 some such bottom hole assemblies, the
07 orifices could be, for example, as small as
08 three-tenths of an inch, correct?
09 A. Could be.
10 Q. Okay. And it was M-I SWACO's
11 understanding, based on the composition of
12 those materials, without the cross-linking
13 additive being added to the composition, that
14 that aperture or that orifice size would not
15 present a problem to this material being
16 applied as a spacer to this application,
17 correct?
18 A. That's correct, because we run
19 LCM while drilling in the -- what we call,
20 like I mentioned yesterday, background -- we
21 call it background LCM. We run a lot of
22 concentrations -- high concentration of LCM,
23 you know, in the -- in the drilling fluid
24 itself while we're drilling.
25 Q. Could I -- would I be fair to
00517:01 say that this discussion in the morning on

02 April 16th among these expected experienced
03 gentlemen, that the -- while the use of LCM
04 materials as a spacer had not been previously
05 done by M-I SWACO, that M-I -- at least from
06 M-I SWACO's perspective, no red flags were
07 being raised about any novelty or any
08 unsuitability of these materials; fair to
09 say?

10 A. Fair to say. Most of our people
11 -- well -- we're aware of the make up of
12 these pills, the products and, you know, the
13 components. And, you know, again that's why
14 they made their suggestion.

15 Q. Would you agree, based on your
16 review of the materials and in your position
17 as -- speaking on behalf of the company in
18 this respect, that for this episode, this
19 time period of April 16th and for the days
20 thereafter, BP wasn't exerting any pressure
21 on M-I SWACO to come up with a plan to save
22 money or time, and that's why BP was pushing
23 such a concept?

24 A. No. We felt no pressure.

Page 518:03 to 519:06

00518:03 Q. Do you agree that the M-I SWACO
04 personnel who weighed in on this option of
05 using the LCM as a spacer concurred in the
06 use of the two LCM pills with the additives
07 as a spacer for this displacement operation?

08 A. You kind of lost me with your
09 question there.

10 Q. Yeah, I got a little long-winded
11 there.

12 Did the gentlemen we discussed
13 earlier, the M-I SWACO personnel, fair to say
14 that they concurred in the suggestion that
15 the two pills be combined and used as a
16 spacer with the additives?

17 A. With the additives, you mean --

18 Q. The barite.

19 A. Ad the Duo-Vis?

20 Q. The Duo -- Duo --

21 A. Duo-Vis.

22 Q. Yeah. Say it again?

23 A. Duo-Vis.

24 Q. Duo-Vis. Thank you.

25 A. Yes.

00519:01 Q. Okay. None of these men and --
02 from your perspective as speaking on behalf
03 of M-I SWACO, did not foresee any risk of the
04 spacer, as so composed, clogging up any part
05 of the BOP?

06 A. No.

Page 519:12 to 519:16

00519:12 Q. The men we discussed earlier
13 from M-I SWACO, those gentlemen concurred in
14 making the suggestion of using the two pills
15 as spacer for this displacement job, correct?
16 THE WITNESS: Yes.

Page 519:18 to 519:21

00519:18 Q. And those gentlemen in M-I SWACO
19 did not foresee any risk of that material
20 clogging up any part of the BOP, correct?
21 A. That's correct.

Page 519:24 to 521:07

00519:24 Q. Would -- tell us the
25 significance of not adding the cross-linking
00520:01 material to the pill, to the Form-A-Set
02 material.
03 A. If the cross-linking --
04 Q. Form-A-Set AK material.
05 A. Form-A-Set AK material. If you
06 do not add the cross-linking material, then
07 the pill could be mixed and stored and, you
08 know, it can stay there for quite some time.
09 It won't set up.
10 Q. Okay. Does the -- does the
11 setting or the sitting of these -- of either
12 the Form-A-Set AK or the Form-A-Squeeze
13 pills, does either of those have its
14 viscosity reduced by biodegradation over
15 time?
16 A. It could over time.
17 Q. Does -- would it be fair to say
18 that the viscosity of either material doesn't
19 increase over time just by sitting?
20 A. These are water-based pills.
21 And if one was to dry out, if you will, you
22 know, over a long period of time, I guess you
23 could say it would increase. But this will,
24 you know --
25 Q. Over the long haul, it would,
00521:01 but in the short term, the biodegradation
02 would thin it rather than thicken it?
03 A. Yeah. The polymer would
04 decompose, yeah.
05 Q. And that would thin it rather
06 than thicken it?
07 A. That will thin it, yeah.

Page 521:11 to 522:12

00521:11 Q. Spacer is made of water,
12 biopolymer -- spacer is constructed of water,
13 biopolymer, and barite?
14 A. Yes.
15 Q. And Form-A-Set material is
16 similar to just normal, ordinary spacers?
17 A. Form-A-Set material contains
18 a -- you know, a polymer, or blend of
19 polymers, and, of course, the fine
20 lost-circulation material.
21 Q. Does -- in your experience, or
22 M-I SWACO's experience, does BP routinely
23 send unused materials to shore for
24 appropriate disposal?
25 A. I would think they do. You
00522:01 know, on drilling rigs, I'm sure there's
02 times when they clean out some tanks or pits.
03 I mean, I'm sure they -- there is some waste
04 on a drilling rig, you know, that has to go
05 in for disposal.
06 Q. You would agree, wouldn't you,
07 that the e-mail traffic that you've reviewed
08 on this subject does not show that there was
09 pressure on M-I SWACO from BP to reuse -- or
10 engage in this beneficial reuse rather than
11 send it to the beach?
12 THE WITNESS: I agree.

Page 522:23 to 523:22

00522:23 Q. Turning your attention back to
24 the contractual issues that were discussed
25 yesterday, I want to call your attention to
00523:01 the incentives, the reward, penalty provision
02 of the contract that, as I recall, M-I SWACO
03 wasn't thrilled to enter into, but did enter
04 into it. Correct?
05 A. We did.
06 Q. And the lost -- the lost
07 returns, the lost fluid that formed the basis
08 of that program created incentives to
09 minimize lost fluids, correct?
10 A. That was what I believed BP's
11 intention was, yes.
12 Q. Well, that's what you
13 understood?
14 A. Yes.
15 Q. And M-I SWACO has the ability,
16 the technical skills, if provided with
17 information about the anticipated formation
18 that drilling is penetrating, M-I SWACO can
19 provide LCM, in advance, that will tend to
20 reduce that possibility of lost returns when

21 entering that particular characteristic of
22 the formation, right?

Page 523:24 to 523:24

00523:24 THE WITNESS: In some cases, yes.

Page 524:01 to 524:07

00524:01 Q. Do you agree, perhaps, that --
02 well -- do you agree, sir, that the
03 incentives to BP to avoid lost returns would
04 be to give the mud engineer as much
05 information as they could so that he could
06 devise fluid makeup to potentially minimize
07 lost returns?

Page 524:11 to 524:16

00524:11 Q. You can answer that.
12 A. I believe so.
13 Q. And that way, with M-I SWACO's
14 assistance, both parties could minimize or
15 have the opportunity to minimize lost --
16 losses in the first place?

Page 524:18 to 524:21

00524:18 THE WITNESS: I believe that both
19 parties work together, anyway, you know, with
20 or without the incentive, like I said
21 yesterday, to minimize losses.

Page 524:23 to 525:01

00524:23 Q. But the incentives certainly
24 didn't de-incentivise BP in that respect,
25 based on your understanding of that
00525:01 provision?

Page 525:03 to 525:04

00525:03 THE WITNESS: Yeah. Based on my
04 understanding, yes.

Page 525:06 to 526:03

00525:06 Q. Yeah. Now, I'm sort of stepping
07 away from that question and going rather big
08 picture on you. With the benefit of all the
09 information that you've been able to gather,

10 the discussions with the M-I SWACO people,
11 including any discussions with Mr. Wilde, Mr.
12 Smith, Mr. Manuel, Mr. Lindner, Mr. Maxie,
13 does M-I SWACO believe it committed error in
14 suggestion -- in its suggestion of the use of
15 LCM as spacer for this displacement
16 operation?

17 A. No.

18 Q. Same question with a twist.

19 Does M-I SWACO believe that BP committed an
20 error in accepting M-I SWACO's suggestion
21 regarding the use of LCM as spacer for this
22 procedure?

23 A. We don't have opinion on that.

24 Q. Well, if M-I SWACO doesn't
25 believe it made a mistake in its suggestion,
00526:01 you're stating that M-I SWACO has no position
02 on whether BP made a mistake in accepting M-I
03 SWACO's suggestions?

Page 526:06 to 526:09

00526:06 Q. You can answer that.

07 A. I don't think BP made a -- made
08 a mistake in accepting our recommendation to
09 use that spacer.

Page 526:12 to 526:16

00526:12 Q. I think I understand. So fair
13 to say that M-I SWACO's position, and you as
14 a 30(b)(6) witness for M-I SWACO, do not cast
15 any blame on BP for accepting that suggestion
16 of using LCM as spacer in this application?

Page 526:19 to 526:20

00526:19 THE WITNESS: As using that spacer,
20 yes.

Page 528:16 to 528:19

00528:16 Q. If I were to come to you and I
17 would ask you to tell me what is a suitable
18 spacer for that purpose, what would you tell
19 me?

Page 528:21 to 528:25

00528:21 THE WITNESS: I would tell you that it
22 would have to be viscous, of course, and,
23 again, the rule -- or the practice is to

24 weight it up, to have a density of 2 pounds
25 per gallon over the mud weight.

Page 529:21 to 530:20

00529:21 Q. Okay. All right. Now, if I
22 were to ask you to give me a suitable spacer
23 for a displacement procedure that I had --
24 I'm contemplating with regard to a temporary
25 abandonment, would you, in that case,
00530:01 volunteer that the suitable spacer should be
02 made up of a combination of Form-A-Set and
03 Form-A-Squeeze?
04 MS. SCOFIELD: Objection to form.
05 THE WITNESS: No.
06 BY MR. BRUNO:
07 Q. No. And why is that?
08 A. Well, if we were building -- if
09 we had no options and were building one from
10 scratch --
11 Q. Right.
12 A. We would build it with the
13 biopolymer, water, and barite.
14 Q. All right. And I -- again, not
15 trying to be difficult with you, but with
16 regard to the use of the word "suitable," the
17 combination Form-a-Set/Form-a-Squeeze was not
18 a suitable spacer, it was an acceptable
19 spacer, according to your company. Isn't
20 that more accurate?

Page 530:22 to 530:23

00530:22 THE WITNESS: I feel it was -- it was
23 both. It was suitable and acceptable.

Page 531:07 to 532:11

00531:07 Q. And I got a definition for
08 "suitable." The one I found was the
09 following: "It's right or appropriate for a
10 particular person or situation." Would you
11 agree with me that that's a reasonable
12 definition for the word "suitable"?
13 MS. SCOFIELD: Objection to form.
14 THE WITNESS: Yes.
15 BY MR. BRUNO:
16 Q. Sure.
17 A. Yes.
18 Q. Okay. So it's appropriate for
19 the situation. Which is pretty much what
20 you've told me.
21 A. Exactly.

22 Q. And appropriate for the
23 situation in this case would have been
24 something viscous, something weighted of an
25 appropriate volume, correct?
00532:01 A. That's correct.
02 Q. Right. So it would not have
03 been to select Form-a-Set/Form-a-Squeeze --
04 MS. SCOFIELD: Object --
05 BY MR. BRUNO:
06 Q. -- that would not have been what
07 you would have chosen as a suitable spacer;
08 isn't that true?
09 MS. SCOFIELD: Objection to form.
10 THE WITNESS: No. If we had to build
11 one from scratch, no.

Page 533:14 to 534:02

00533:14 Q. Now, what I was trying to
15 confirm was whether or not the procedure that
16 is outlined on those documents was, in fact,
17 the procedure intended to be utilized to use
18 the Form-a-Set/Form-a-Squeeze combination as
19 a spacer in the displacement of the riser,
20 contemplating that there would be, at the
21 same or similar time, a negative test
22 conducted.
23 MS. SCOFIELD: Objection to form.
24 THE WITNESS: This procedure was
25 probably number two. There was an earlier
00534:01 procedure, which didn't have a negative test
02 mentioned into it.

Page 536:16 to 537:25

00536:16 Q. All right. Now, what is your
17 understanding of the role, if any, that this
18 exhibit number played -- Exhibit No. 2820 --
19 MR. BRUNO: Was it 2820?
20 MS. SCOFIELD: 2821.
21 BY MR. BRUNO:
22 Q. 2821, I'm sorry. -- played with
23 regard to the change of the procedure from
24 one to the other?
25 A. It is my understanding that this
00537:01 communication initiated the change in the
02 displacement procedure.
03 Q. Great. Now, would you share
04 with us exactly what is the change in the
05 procedure? What is different between the
06 procedure previous to this ops note versus
07 the procedure that was, we believe,
08 ultimately utilized?
09 A. The fact that they were going to

10 do a -- the fact that they were going to do a
11 negative test in the middle of the
12 displacement.

13 Q. Is that the only change? Did
14 the pump strokes, did the location of the
15 spacer change in any way?

16 A. Let me be sure I'm looking at
17 the -- I'm just comparing the two here.

18 Q. Let me get this out of your way,
19 though. Those two and that. Yeah.

20 A. In the initial displacement, you
21 wouldn't have stopped. The spacer would not
22 have been parked, as they refer to it, you
23 know, above the BOP. But other than that,
24 the volume, you know, should have been the
25 same.

Page 549:20 to 550:04

00549:20 Q. And I think you -- in response
21 to questions by Mr. Haycraft, you said, well,
22 you know, at least 200, but more than that's
23 not a problem. Right?

24 A. Right.

25 Q. Now, it's not a problem, but the
00550:01 fact is that the larger the volume -- the
02 larger volume may produce a different
03 location for the bottom and/or the top of the
04 spacer?

Page 550:06 to 550:10

00550:06 BY MR. BRUNO:

07 Q. Isn't that true?

08 A. As compared to a smaller spacer?

09 Q. Yes.

10 A. Yes.

1 CORRECTION PAGE

2 WITNESS NAME: BRAD BILLON DATE: 06/24/11

| 3 | PAGE | LINE | CHANGE | REASON |
|----|------|------|--|----------------|
| 4 | 458 | 6 | "pollutants" to "contaminants" | Reporter error |
| 5 | 464 | 19 | "That as" to "That is" | Reporter error |
| 6 | 466 | 16 | "approval the" to "approve of the" | Reporter error |
| 7 | 491 | 19 | "reload" to "use" | Reporter error |
| 8 | 548 | 12 | "wanted" to "want" | Reporter error |
| 9 | 548 | 12 | "in" to "and" | Reporter error |
| 10 | 548 | 21 | "wellbore to see" to "wellbore hydrostatic to see" | Reporter error |

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PURSUANT TO CONFIDENTIALITY ORDER