UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF LOUISIANA

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IN RE: OIL SPILL BY THE OIL RIG *DEEPWATER HORIZON* IN THE GULF OF MEXICO ON APRIL 20, 2010	DOCKET NO. MDL-2179 SECTION "J" NEW ORLEANS, LA TUESDAY, OCTOBER 1, 2013

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IN RE: THE COMPLAINT AND PETITION OF TRITON ASSET LEASING GMBH, ET AL	DOCKET NO. 10-CV-2771 SECTION "J"

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UNITED STATES OF AMERICA V. BP EXPLORATION & PRODUCTION, INC., ET AL	DOCKET NO. 10-CV-4536 SECTION "J"

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DAY 2 MORNING SESSION

TRANSCRIPT OF NONJURY TRIAL PROCEEDINGS
HEARD BEFORE THE HONORABLE CARL J. BARBIER
UNITED STATES DISTRICT JUDGE

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I N D E X

P-R-O-C-E-E-D-I-N-G-S

TUESDAY, OCTOBER 1, 2013

M O R N I N G S E S S I O N

(COURT CALLED TO ORDER)

08:02:36 THE DEPUTY CLERK: All rise.

08:02:37 THE COURT: Good morning, everyone.

08:02:46 VOICES: Good morning, Your Honor.

08:02:48 THE COURT: All right. Before we resume testimony, I would just let everybody know, according to our timekeepers, the aligned parties yesterday used 3 hours and 20 minutes, have 11 hours and 40 minutes remaining. BP has used 3 hours and 37 minutes, and have 11 hours and 23 minutes remaining. Okay.

08:03:23 MS. KARIS: Good morning, Your Honor. Hariklia Karis for BP.

08:03:28 At this time, I would like to tender the list of exhibits used with Dr. Wilson. We've circulated it, and I understand that there are no objections.

08:03:36 THE COURT: Without objection, those are admitted.

08:03:36 (WHEREUPON, the above referenced exhibits were admitted.)

08:03:39 MS. KARIS: Thank you.

08:03:40 MR. COLLIER: Good morning, Your Honor. Paul Collier on behalf of BP. We would like to tender the exhibits that we

used during the cross-examination of Mr. Perkin. We distributed them last night, and I understand that there are no objections.

THE COURT: All right, without objection, those are admitted.

(WHEREUPON, the above referenced exhibits were admitted.)

MR. BRIAN: Your Honor, I don't know if you've had a chance to rule on the objections to the deposition clips --

THE COURT: I've looked at them. Let's see. What we're talking about now are Mr. Vargo --

MR. BRIAN: Vargo and Mr. McWhorter.

THE COURT: -- McWhorter and Herbst?

MR. BRIAN: Correct.

THE COURT: It's my understanding, from the letters that you all filed, that most of this testimony was not objected to when the depositions were designated. Am I right about that?

MR. DOYEN: Yes, Your Honor. That's correct.

MR. LANGAN: Your Honor, it's Andy Langan.

That's not quite correct. I mean, we filed general objections that made it clear they were all subject to pending Motions *in Limine*. Our Motions *in Limine* included improper fact testimony -- opinion testimony by fact witnesses. So we don't subscribe to the view that there is no objection

lodged.

MR. DOYEN: Well, I think, Your Honor, we went through a very detailed process, as you know, of identifying these things, so we weren't at the last minute learning what excerpt we get.

THE COURT: No, I agree. If the deposition designations were not objected to, as far as I'm concerned they're waived.

Having said that, I'm going to overrule all of these objections, which probably would be overruled anyway, so we are kind of arguing about nothing here.

For the most part, I think most of these objections with this testimony is much ado about nothing in terms of, you know, being objected to. The only thing I would say, I would agree with BP to take out the part about -- which was objected to, apparently, in Mr. Vargo's testimony --

MR. LANGAN: Yes.

THE COURT: -- at page 316, starting at line 21, through Page 18, ending at line 22.

MR. DOYEN: Thank you, Your Honor.

THE COURT: Other than that, I overrule the objection.

MR. LANGAN: Thank you, Your Honor.

MR. BRIAN: We'll make that revision, Your Honor, and then we'll play them after this witness.

MR. DOYEN: I apologize to the court reporter, Your

Honor. I'm Mike Doyen for Transocean.

THE COURT: Thank you.

MR. IRPINO: Good morning, Your Honor. Anthony Irpino for the PSC.

We have our list of aligned parties' exhibits and demonstratives used to offer in connection with the examination of Gregg Perkin yesterday.

We sent that list around yesterday. We received no objections. We offer, file and introduce that into evidence.

THE COURT: All right. Hearing no objection, those are admitted.

(WHEREUPON, the above referenced exhibits were admitted.)

THE COURT: All right. Any other preliminary matters?

All right. The aligned parties may call their next witness.

MR. LI: Your Honor, Transocean, on behalf of the aligned parties, calls Rob Turlak. We're going to get him.

THE DEPUTY CLERK: Raise your right hand, please. Do you solemnly swear that the testimony you are about to give is the truth, the whole truth and nothing but the truth, so help you God?

THE WITNESS: I do.

ROBERT TURLAK

was called as a witness and, after being first duly sworn by the Clerk, was examined and testified on his oath as follows:

THE DEPUTY CLERK: Please take a seat. State your name and spell it name for the record.

08:07:55 THE WITNESS: My name is Robert, R-O-B-E-R-T, Turlak, T-U-R-L-A-K.

08:08:00 08:08:12 MR. LI: Your Honor, it's Luis Li on behalf of Transocean, on behalf of the aligned parties.

08:08:16 08:08:08 DIRECT EXAMINATION BY MR. LI:

08:08:12 Q. Mr. Turlak, with whom do you currently work?

08:08:19 A. I work for Transocean.

08:08:20 Q. What's your position?

08:08:22 A. Managing subsea engineering and well control systems.

08:08:25 Q. Now, sir, you graduated from Texas A&M in 1978. What was your degree?

08:08:29 A. Bachelor's of Science in mechanical engineering.

08:08:30 Q. Since 1978, have you been an engineer?

08:08:32 A. Yes, sir.

08:08:36 Q. Are you certified?

08:08:36 A. Yes, sir. I'm a Registered Professional Engineer in the State of Texas.

08:08:38 Q. Mr. Turlak, we have a blowout preventer in front of you. Have you been working with blowout preventers pretty much your entire career?

08:08:41 08:08:41 A. Yes, sir.

08:08:45 08:08:47 08:08:48

Q. Where did you first start working?
A. I started with Cameron Iron Works in 1979. I worked in their product design group, working on design improvements to ram-type BOPs and annular BOPs. I had some involvement with riser and connectors.
Q. How long did you work there?
A. I worked there for 22 years.
Q. Now, while you were at Cameron, were you ever involved in a response to an uncontrolled well?
A. Yes. When I was technical manager in Cameron Singapore, I was -- Cameron Singapore was contacted by Atlantic Drilling, a gentleman named Gordon Porter. They had an incident where -- they had a well control incident, and when they operated the blind shear rams, the blind shear rams cut the pipe, but what was later revealed to us, a piece of the pipe had shattered and had gotten between the ram and the sealing member and the opposite ram, and it couldn't seal off completely.

So there was still gas bubbling from the well. It was later found that there was 3300 psi of pressure shut in by the ram, but not completely.

Q. Now, first of all, about what year was this?
A. 1988.
Q. Now, once you had determined, you and your team had determined that there was a leak above the BOP, what did you all do?

A. Well, the LMRP had already been disconnected and the rig moved to a safe location. We met with Atlantic Drilling as well as the operator, which was Chinese National Oil Company.

Q. I'm going to stop you right there for a second.

MR. LI: If I may approach, Your Honor.

EXAMINATION BY MR. LI:

Q. We've had our friends at Z-Axis create a 3-D model of a BOP. For now, let's just talk about it as a general BOP.

You mentioned the term LMRP. What is that?

A. That's lower marine riser package. It's a group of components bolted together that form the upper section of the BOP stack.

The LMRP starts here at the lower connector, lower riser connector. You've got -- on this particular BOP, which is the *DD II*, you've got a connector, an annular, and a flex joint.

Q. Do you need some water?

A. Yes, thank you.

Q. Now, just this lower stack here, is this what we call the lower BOP stack?

A. Yes, sir.

Q. With respect to the LMRP, this connector here, how does it work? Does it hydraulically work?

A. It's hydraulically actuated. This type of connector is hydraulically actuated such that several cylinders are actually

08:11:48 pushing up an actuator ring that provides the segments that are
08:11:54 located around the periphery of this adapter or mandrel to move
08:12:02 inward and grasp the OD of the mandrel, which has grooves
08:12:08 machined into the OD of it.
08:12:11 Q. OD is what, outside --
08:12:12 A. Outside diameter.
08:12:13 Q. Is it also designed to release?
08:12:17 A. Yes, sir.
08:12:17 Q. Is an LMRP designed to be released from a BOP --
08:12:22 A. Yes.
08:12:23 Q. -- a BOP stack?
08:12:24 A. Yes.
08:12:25 Q. Now, let's just make clear for the record, you're here to
08:12:33 testify about your role and your knowledge about BOPs; correct?
08:12:38 A. Yes, sir.
08:12:38 Q. You're not here to offer any opinions on the
08:12:41 decision-making process to proceed with one source control
08:12:45 option versus another?
08:12:46 A. No, sir.
08:12:46 Q. So I started with a little bit of discussion about the
08:12:52 LMRP stack. Now, if we could talk a second about the lower
08:12:56 stack, the lower BOP stack.
08:12:58 A. Yes, sir.
08:12:58 Q. All right. If we start at the bottom --
08:13:01 MR. LI: Judge, I don't know if you can see it.

EXAMINATION BY MR. LI:

Q. -- down here at the bottom, what is this? What is this component?

A. This is a wellhead connector. Its purpose is to attach the lower BOP stack to the subsea wellhead.

Q. Now, let me ask you a question. In your career, have you worked or have your teams worked on stacking BOPs?

A. Yes. I was the group leader at Cameron stacking up BOPs, working on the frame design and the integration of all the equipment.

Q. Just before we get into the specifics of all of the BOPs, are these modular, or are they meant to stack in a specific way?

A. No, they can be moved anywhere. You know, a single can go in the upper portion, doubles can be on the bottoms. We've even got some that are triple-cavity BOPs.

Q. So let's move up. So down here, we have a connector. Does it work pretty much the same way as this connector up here?

A. In a similar manner. This has got a higher capacity connector, but it works in a similar manner to the LMRP connector, yes.

Q. This connector attaches to what?

A. This has got an upper flange at the top. A flange is nothing more than a circular piece of metal that has got holes

drilled at a specific bolt circle diameter and has a preparation for a metal sealing ring gasket in the face of that flange.

You have a mating piece that's on the bottom of this single-cavity ram-type BOP. You use studs to make up the bolts, and those bolts then apply a compression load between the faces and provide a preload, so the pressure doesn't separate it. Those bolts, the studs and nuts are made up with torque wrenches to a specified torque.

Q. So you use a torque wrench to tighten the nuts?

A. Yes, sir.

Q. All right. What's this first cavity here?

A. This is a single ram type BOP. It can house a test ram, maybe a VBR, anything like that.

MR. LI: It's essentially the same as this, Your Honor, which is what the thing is.

EXAMINATION BY MR. LI:

Q. Is that correct?

A. Yes.

Q. What's above; is it another single ram?

A. Yes, sir. That's another single ram.

Q. Then above the single ram, what do we have here?

A. That's a double ram BOP. It's called a double because there's two ram cavities in that particular component.

Q. Then we have -- what's here?

A. Another double ram BOP.
Q. Then what's here?
A. That's a -- that's the annular blowout preventer. That's the last portion -- last component in the lower BOP stack.
Q. At the very top, which you can't see because it's covered by a connector, but at the very top what do we have?
A. It's called a mandrel by some companies and adapter spool by others, but it's a method by which the LMRP can connect to the lower BOP stack.

So the preparation on the outer diameter of the mandrel is similar to the preparation on most wellheads.
Q. I know we already mentioned it a little bit, but does it have to be stacked in this configuration, or can it be moved around?
A. No, it can be moved around because the flanges are similar. As long as you've got -- you're able to -- you're able to make a flange to a flange or a studded connection to a flange, you can pretty much -- and they are about the same size and pressure rating -- then they can bolt up any way you like.
Q. Can you do all of that work -- can you do all that work on the rig, or does it all have to be done onshore?
A. No, it can be done on the rig. We frequently do break those connections on the rig.
Q. Let's focus on a couple of things on this model, and then we'll move on.

With respect to -- let's just look at this two-ram stack here. There are rams in it?

A. Yes, sir.

Q. Now, we've heard a lot about rams in Phase One. What kind of rams can you put in these various stacks?

A. Well, you can -- you can really put -- you can really put any type ram. You can put a pipe ram that closes around a specific size of pipe. You can put a variable bore ram in a cavity. You can put a casing shear ram, and you can put -- or you can put a blind shear ram in a cavity -- in any one of these cavities.

Now, the difference is, here, you can see by the hydraulic operator portions of the BOPs, these are a little bit smaller, so these are going to -- it's going to tell me that these are probably going to operate pipe rams.

Up here, you've got larger operators. Those have got -- those are probably going to operate shear rams because when you're trying to close the shear ram you're probably going to want some more force available to actually cut the pipe.

Q. Can you change these rams on the rig itself?

A. Yes, sir. These -- these types of -- this is a Hydril BOP, so it's got doors. We have hinges on the sides of the body, such that you can remove these eight bonnet bolts. There's four on each side.

You remove these bolts, and you swing this open. It

swings in the direction of the hinge. You can then remove the ram and replace it with another ram, or change the elastomers on the ram and then put it back in.

Q. You can pretty much do that on the rig?

A. Yes, sir, we do it all the time, standard practice.

Q. Now, these yellow -- what look like valves, what are they?

A. These are double block valves. They are two gate valves in series. Instead of having separate, single -- single gate valve bodies, we've got the valves are incorporated into a single block.

There is two together like that for -- really, for redundancy. In the event that one valve doesn't work, we've got a backup valve.

Q. Redundancy?

A. Yes, sir.

Q. Are they sometimes known as fail-safe valves?

A. They are fail-safe valves in this case. We do have fail-open valves in some areas, but these particular ones on the BOP stack are fail-safe closed. So in the event you had a loss of hydraulics, these would fail closed.

Q. Now, there is a number of flanges, blind flanges and what have you, on the sides of these valves. What are they for?

A. Well, the flanges on the end of the valves there and also on the bottom, in the event there is not a spool connecting two of the valves, are really there for -- they are called buffer

flanges because you have a change in direction of flow.

If on the choke side, if you're going to come out, if you're going to circulate out of a gas bubble back up to the rig through the choke manifold through the degasser, then you're going to be changing direction coming out of the BOP body and going upward.

So I've got a buffer flange here on the end. The buffer flange is really to prevent erosion due to change in direction.

The same is true on the bottom. Because you may be pumping down, you've got to change directions, so you want a buffer flange in that area.

Q. Now these are just flanges, you could pretty much attach anything to them?

A. Yes, sir, they are a modified blind flange, modified API blind flange that have a certain number of bolts with a certain type of ring connection. So, yeah, undoing the nuts off of the studs and removing the flange, you could bolt something else onto it.

Q. The reason why I'm asking you that is are these valves in all of these various devices intended to be flexible and modular?

A. Yes, sir, they are.

Q. Last set of questions relating to this. What are these?

A. Oh, these are spools connecting valves.

08:21:40 Q. I mean, this whole assembly? What is it, choke and kill
08:21:44 line?
08:21:44 A. Oh, these are choke and kill lines. What's next to me is
08:21:47 the kill side, and this side is the choke side, going up, back
08:21:53 up to the rig, and connecting to the choke and kill manifold.
08:21:57 Q. The Court has heard a lot about choke and kill lines, so
08:22:01 let me ask you a couple last questions about the body itself.
08:22:04 How do these valves attach to the BOP? Do they have
08:22:07 to be here, or could they be located elsewhere?
08:22:09 A. Well, each of the BOPs -- for every ram cavity, there is
08:22:13 a -- there's an outlet that is -- a bore is machined into the
08:22:21 main through bore of the BOP and -- to provide communication
08:22:26 out to the valve.
08:22:28 So, as you pointed here --
08:22:30 Q. I'm holding D-250233 -- I'm sorry 23A. 25023A.
08:22:39 A. -- this being a double ram cavity BOP, you've got two
08:22:45 outlets on each side, two on each -- each ram cavity. So you
08:22:51 can just -- by removing the nuts on the studs, you can remove
08:22:55 the flange.
08:22:55 Q. Then if you wanted to attach a valve -- I'm holding
08:23:01 D-25024 -- you could simply, what, bolt it there?
08:23:05 A. That's right. You could put a new ring gasket in place
08:23:09 and screw on the nuts on to the studs.
08:23:12 Q. Now, Mr. Turlak, how many outlets are there on this -- on
08:23:19 the model in front of you, which is a copy of the *DD II* blowout

preventer?
A. Well, since there is six cavities on the ram BOP, there would be 12 outlets, six on each side.
Q. So at least theoretically, if you could make it fit, you could put 12 valves on this?
A. Yes.
Q. You could vent from any one of those valves?
A. Yes.
Q. Now, Mr. Turlak, we skipped one last thing, which is up here. I don't think the Judge can see it too well, but there is another valve up here. What's that valve for?
A. Well, it's a valve, a double block valve that's connected to the -- an outlet on the upper annular.

What that's there for is to be able to vent in the event we had a well control incident, and we were going to circulate out from one of the lower valves -- however, the upper annular is closed off initially, so there might be a gas bubble in the BOP -- we would have the opportunity to vent back to surface all of the gas above the cavity where we actually were closed off on eventually.

So there might be gas in here. So this gives you -- allows you a method of venting off that gas.
Q. So in addition to the 12 outlets you have here that you could attach some sort of venting option, you've also got another venting option up here at the top of the stack?

08:24:57 A. Yes, and that's used more often in well control
08:25:00 situations.
08:25:00 Q. That's actually what that particular vent -- or that
08:25:03 particular valve right there is designed to do?
08:25:06 A. That's correct, sir.
08:25:07 Q. Now, let's switch topics for a second. I just want to
08:25:13 move you to the day of the tragedy.
08:25:19 After April 20th, were you involved in a group that
08:25:22 was referred to as the Capping Team?
08:25:24 A. Eventually, yes, it was called the Capping Team.
08:25:28 Initially, it was a group of people from BP, some of the
08:25:32 vendors, Vetco and Cameron, as well as some of the BP --
08:25:41 Transocean, as well as some of the BP contractors.
08:25:44 Q. What was your essential -- what was the Capping Team's
08:25:50 assignment?
08:25:50 A. Our assignment was to work on BOP-on-BOP, as well as the
08:25:56 capping stack.
08:25:56 Q. Essentially, to find options to cap the well?
08:26:00 A. Yes, sir.
08:26:00 Q. Now, who was in charge of the group?
08:26:03 A. Jim Wellings with BP.
08:26:07 Q. Was he a smart guy?
08:26:10 A. Yes.
08:26:11 Q. Did you meet with him on a number of occasions?
08:26:15 A. Yes, sir.

08:26:15 Q. Was he enthusiastic about the BOP-on-BOP option?
08:26:20 A. He knew we had to get something done, and he wanted to
08:26:24 move ahead.
08:26:24 Q. Now, again, just so we're clear, you were not involved in
08:26:34 the decision-making process related to which options to do; you
08:26:38 were just involved in building the BOP, correct?
08:26:41 A. That's correct.
08:26:41 Q. Now, let's take a look at TREX-145113.57.1. This is your
08:26:52 calendar -- is this your calendar?
08:26:54 A. Yes, sir.
08:26:55 Q. Read the entry for April 28th.
08:27:00 A. The one highlighted, it's, "Look at Stack on Stack." Then
08:27:05 right above that, in the scribble is "*Enterprise* or *DD III*."
08:27:11 Q. What did you mean when you wrote "Look at Stack on Stack"?
08:27:15 A. Well, to look at either the *Enterprise* or the *DD III* as
08:27:19 taking the BOP stack that was on the rig and putting that stack
08:27:26 on top of the lower *Horizon* BOP stack.
08:27:31 Q. Basically this entire structure, correct?
08:27:33 A. Correct.
08:27:33 Q. Now, I neglected to say this originally. Normally when we
08:27:37 have renditions of this stack, there is a frame around it.
08:27:40 A. Yes.
08:27:40 Q. We pulled the frame off so you can actually see it.
08:27:43 A. Yes.
08:27:43 Q. What's the frame for, by the way?

A. Well, the frame is there for, really, hanging things on, like accumulator bottles. We've got -- on the LMRP, we've got the stab plate that has the control pods on them, as well as -- the essential portion of the frame is usually for handling, for hanging off in the moonpool, as well as for protection of some of the components as it's going through the moonpool into the splash zone.

Q. Now, back to your note here, you say, "Look at Stack on Stack," "*Enterprise*." Did you eventually settle on the *Enterprise*? Not you, but did the Team eventually --

A. That was the first one we went to, yes.

Q. Now, as of April 28, 2010, was the *Enterprise* ready to be splashed right on that day?

A. No, sir. It was not.

Q. Okay. What sort of work needed to be done?

A. Well, the first thing we looked at was whether or not -- what type of connector we would need to put on the bottom of it, because if we were going to engage the adapter spool on the lower BOP stack, we were going to need a Cameron HC type connector that had collets that could attach to that particular adapter spool.

The connector that was on the bottom of the *Enterprise* wasn't able to be used because of some interference, so we had to put a HC connector on it.

Q. So you had to switch out the bottom component of the

stack?
A. Yes.
Q. Is that something hard to do, or is that common?
A. No, it's a common thing to do.
Q. It's just so that the particular connector can actually connect to the *Deepwater Horizon*?
A. That's right. That's right.
Q. Did you have to do anything with how you lowered the device down onto the BOP?
A. Yes, we -- what came to us early on, I guess, when there was initial thinking about the *Enterprise* is, is we had to get two riser joints and cut twelve 8-inch holes in the main tube of the riser and actually plug the end of that particular riser joint because the concern was is, as we were lowering the *Enterprise* onto the *DD II*, we didn't want to get that oil and gas coming straight up the riser back up to the surface.

So we blocked off the end of that riser joint. For redundancy, we did a second riser joint the same way. Then one more riser joint, we actually cut holes in the side and put pieces of pipe welded to the main tube with 4-inch ball valves.

The purpose of that was, since we were blocking the main tube, we wanted to have a method by which we could flood the riser, so that once we were at depth we wouldn't collapse the -- we wouldn't collapse the main tube.
Q. So I've done a very crude drawing here, but, basically,

here is the *Enterprise* BOP. You're dropping it on top of the *Deepwater Horizon* BOP. You need some holes in these risers, so that as the gas and oil was coming up, it flows out instead of up?

A. Correct.

Q. Then you closed it off here. Then you had another riser that you cut some holes into, just in case anything got through?

A. Just in case --

MR. COLLIER: Your Honor, if I may object. There is a lot of leading that is occurring.

MR. LI: I'm just trying to summarize.

THE COURT: Try not to lead your witness.

EXAMINATION BY MR. LI:

Q. So what's the second riser with all the cut-ins for?

A. In the event the seal member leaked on the first perforated joint, the second one was there to prevent it from going upwards. It's just a balancing situation, and we have 4-inch ball valves there that were ROV operated so we could flood the riser.

Q. Why did you need to flood the riser?

A. Because once you get to depth, if it was completely voided, we might collapse the riser.

Q. And these -- were these engineering solutions that you worked on yourself?

A. Yes. Yes, I worked on them. But, I mean, a lot of that came out of the group to say we really needed this sort of thing and this is the way we can go about doing it.

We had to go back to Vetco to find out exactly -- since it was a Vetco riser, ask them if we cut these holes in the riser, what the capacity of the riser was, because we were going to lower something more than 600,000 pounds in weight. So then Vetco came back to us and told us that the capacity was somewhere around -- still around two million pounds.

Q. Fairly sophisticated, complicated engineering problem?

A. Not really.

Q. Not for you?

A. No. It's cutting holes. The big thing was, is coming up with an answer as to what the capacity was, because that's just -- cutting holes in things and making it look like cheese is not something we normally do.

Q. I neglected to give a demonstrative number for the BOP stack we were looking at. It's D-25027.

Now, let me pull up TREX-4310.1.1.TO. This is an e-mail from James Wellings to you on May 6, 2010. It attaches a wav file and it says, "Well cap animation fixes."

Did you receive this e-mail on May 6, 2010?

A. Yes.

Q. And at that point, on May 6, 2010, did you understand that the plan was to lower the *Enterprise* BOP on top of the

Deepwater Horizon?

A. Yes.

Q. Let's take a look at the native file which is attached to this e-mail, which is the animation, and that is D-25010.

This is the animation that was attached to that e-mail?

A. Yes, sir.

Q. What is being shown here?

A. The *Enterprise* drillship in the area of the Macondo well.

Q. Okay. Let's move it forward.

A. Here we see the *Enterprise* at a distance, at a safe zone away from the Macondo well.

Q. Okay. And then it moves over the well, and what do we see here?

A. Well, we see the ROV ready to cut the riser debris away from the BOP, and the riser debris was going to be removed away.

Q. Let's move it to 12. And stop.

So there he is cutting the riser.

Okay. Keep going.

A. Now we see the BOP being run on a forward rotary with the perforated riser joints.

Q. Stop.

A. And you see a drill pipe being run out of the forward rotary and was going to be used to lift the LMRP. There is

a -- you can't see it from this picture -- but there is a U-shaped tool at the end of the pipe, the pipe string that would be used for lifting off the LMRP.

Q. So the riser pipe on the left with the holes in it, is that the riser that you worked on having the holes made?

A. Yes, sir.

Q. If we could go forward to the next. Stop at 31.

A. Here we see the BOP is hung off on the forward rotary and it's stopped the -- run. The LMRP pipes, being drill pipe recovery string, was hung off on the aft rotary and they are moving forward at a quarter knot.

Q. I don't know if the Court can see it, but is the drill pipe on the right of the --

A. Yes. That's it on the right-hand side.

Q. Very faint.

And if we could go forward to 38.

A. And here you can see that the BOP stack is still at a distance away, and here is the tool that's attached to the pipe, to the drill pipe string that's hanging from the rotary. Those U-shaped members there that have been attached to the drill pipe are going to be what slings -- that are attached to the LMRP -- are going to be looped over so that you can then lift the LMRP off the stack.

Q. Let's go to the next sequence.

A. It's the rings. And you can see on this that there's two

08:37:20 ROVs standing by. The well is blowing out and the slings are
08:37:25 attached to the lift ring around the annular BOP on the LMRP.
08:37:30 Q. And what happens next?
08:37:32 A. The ROV goes in and plugs in to the ROV port on the LMRP
08:37:38 and functions the -- provides hydraulic pressure, functions the
08:37:44 connector and the LMRP lift. It opens it, and the LMRP is
08:37:49 lifted off.
08:37:49 Q. Now, you see between the LMRP and the lower stack there is
08:37:56 a line. What is that?
08:38:00 A. That's drill pipe sticking out of the lower BOP stack.
08:38:03 Q. So what was the plan -- what was the plan as of May 6,
08:38:09 2010, in this e-mail sent by Jim Wellings of BP, what were they
08:38:14 going to do with this drill pipe?
08:38:15 A. They were going to use an ROV with a saw cutter attached
08:38:21 to the bottom of the ROV and go in and grasps the adapter spool
08:38:26 and the saw was going to cut off the drill pipe.
08:38:31 Q. What are we seeing here?
08:38:34 A. Well, exactly what I said. It's the -- it's the saw
08:38:38 cutter grasping the back end of the adapter spools for
08:38:44 stability and a saw coming across and cutting the drill pipe,
08:38:49 and the drill pipe is lifted a way.
08:38:50 Q. And what happens next?
08:38:57 A. Well, the ROV went in and checks the ring gasket groove to
08:39:01 see what the -- what the condition of the groove is and
08:39:05 installs another ring gasket. And gets -- then the BOP is

ready to be landed.

Q. Let's go forward.

A. As you can see here, the BOP is moved over the plume. The oil and gas is going to go up through the bore of the BOP and start coming out of the perforated riser, and the ROV is going to go in and make sure it's landed out correctly. And from the surface, we can send a signal down to whatever pod is being used at that time, and the pod will provide hydraulic power down to the connector and it will latch it on.

Here we're showing the -- again, from the surface, we can push a button and close one set of -- one set of shear rams. If that doesn't seal it off, it will at least slow the flow down for the second set to be closed and to seal off the well.

Q. Now, I think that's a point I want to make clear. So you can control this BOP from the surface?

A. Yes.

Q. Now, with the capping stack, which we'll get to, how did you have to control that?

A. By ROV.

Q. So underwater?

A. Yes, sir.

Q. All right. Now, just -- at least theoretically, we talked about the ability to change out rams on the BOP stacks. How many stacks were there -- how many ram cavities were there on

08:40:37 the *Deepwater Horizon* -- sorry -- the *Enterprise*?
08:40:41 A. Six.
08:40:41 Q. So you could -- theoretically, how many blind shear rams
08:40:46 could you load into that, theoretically?
08:40:48 A. You could have loaded all six.
08:40:49 Q. Now, by early mid-May -- early May, sorry, had the Capping
08:41:04 Team identified hydrate formation as a potential risk
08:41:07 connecting the *Enterprise* BOP?
08:41:08 A. Yes.
08:41:09 Q. What did you all plan to do to mitigate that risk?
08:41:12 A. Well, we could have just pumped glycol down the kill line.
08:41:18 We could have opened one of the side outlet valves and pumped
08:41:22 it, because the concern was glycol -- was hydrates collecting
08:41:28 in the main through bore.
08:41:30 Q. The Court may know this already, but what's a hydrate?
08:41:33 A. Hydrate is phenomena of -- in this case, a hydrocarbon and
08:41:38 free water that's available and would, under -- under higher
08:41:44 pressure, which is at 5,000 feet, we've got around 2,000 -- I
08:41:50 don't know exactly the number, 2200 psi -- but you got a high
08:41:54 pressure situation, you've got hydrocarbons available, you've
08:41:57 got cold temperature water and you've got free water, and what
08:42:02 actually can occur is ice.
08:42:04 Q. And so it ices up the parts of the BOP?
08:42:06 A. That's right.
08:42:06 Q. And so what did you plan -- how did you plan to mitigate

it?
A. Well, we can pump in glycol, which is no more than antifreeze, which will raise the -- raise the temperature which is in that area so those hydrates cannot form.
Q. Now, we talked a little bit about venting capacity on the *Enterprise* stack. Tell us about the *Enterprise* itself. What kind of ship was it?
A. Well, it was equipped for -- that it could do well testing as well as production. It had the capability of bringing the oil and gas to surface, separating the oil and also flaring off the gas, which is exactly what it did during the -- when they were in the collection mode in late May.
Q. So just to put a point -- question on it, could it vent to surface?
A. Yes.
Q. Now, as of May 6th, May 7, that timeframe, how close was the *Enterprise* BOP to being finished and deployed?
A. Just a matter of days.
Q. At some point was the *Enterprise* BOP eliminated as an option?
A. Yes, sir. I think around May 10th.
Q. Was that your decision?
A. No.
Q. Whose decision was it?
A. It was BP's decision.

08:43:48 Q. Let's turn back to your calendar, TREX-145113.61.1.TO.

08:43:58 So here's your calendar, May 10th. There is a highlighted portion. What does it say?

08:44:04 A. It says, "Well Cap Team now wants to look at *DD II* for running on to *Horizon* lower BOP.

08:44:11 Q. What were you saying there?

08:44:13 A. Well, I'm making a note that the Capping Team was -- now wanted to look at the *Development Driller II* for use on to the -- to shut-in on to the *Horizon* lower BOP.

08:44:32 Q. Was the *DD II* blowout preventer stack, was it different substantively from the *Enterprise* blowout preventer?

08:44:43 A. There were a few things different on it. I don't think the *Enterprise* had -- I think it was three sets of doubles whereas the *Development Driller II*, which we're looking at here, had two singles on the bottom. But really it's pretty much the same thing.

08:44:57 It had one less annular. There wasn't an annular in the lower BOP stack. That's what we see here on the *DD II*, but it did have an annular in the upper one, so it's a little shorter, a little lighter.

08:45:11 Q. So did switching from the *Enterprise* BOP, which was only a few days away from being able to be splashed, to the *DD II* BOP on May 10th, did you have to do extra work now? Did you lose some work? Did it cause delay?

08:45:29 A. Well, we had -- exactly what we talked about with the

08:45:31 1 *Enterprise*, that we had to cut holes, since -- since the riser
08:45:35 2 on the *Development Driller II* is a little bit different from
08:45:39 3 the riser on the *Enterprise*, and it's method of handling is
08:45:44 4 different, then we had to redo the same thing we did for the --
08:45:48 5 for the flange Vetco risers. Cut holes in the riser to
08:45:53 6 perforate them, cut twelve 8-inch holes, had to do it on two
08:45:58 7 joints.
08:45:58 8 We had to design a plug to go in the main wellbore.
08:46:04 9 It was a little bit simpler on the Vetco riser.
08:46:07 10 Had to take some -- had to do some design work on the
08:46:13 11 Aker riser. We had to get with Aker to see what the capacity
08:46:17 12 of that riser was after we cut the holes in them, because that
08:46:22 13 particular riser is a little bit different design and we
08:46:25 14 couldn't just say, well, it's the same as the Vetco one,
08:46:29 15 because it's not.
08:46:32 16 And then we had to look at some baffling plates on
08:46:36 17 the bottom of the BOP so hydrates wouldn't come up, which is
08:46:40 18 just a redundant situation to what we did for the Vetco -- I
08:46:44 19 mean for the *Enterprise*.
08:46:45 20 So getting a connector and that part of it -- all
08:46:50 21 that work that we did for the *Enterprise* just gave us a recipe
08:46:56 22 for what we had to do for the *DD II*.
08:46:57 23 Q. But you had to do it all over again?
08:46:59 24 A. That's correct.
08:47:00 25 Q. Let's take a look at TREX-145008.1.1.

Did you receive this e-mail from Asbjorn Olsen on May 15, 2010?

A. Yes.

Q. And it says, "Gentleman, we have, as you know, been asked by BP to execute the stack-on-stack option using the *DD II* BOPs. We need to discuss," and then it goes on, "status of riser and connector modification jobs."

Is that what you just described there?

A. Yes.

Q. And then at the bottom, it says, "BP" -- this is as of May 14, 2010. "BP wants us to be ready for running BOPs on Tuesday."

What did you understand that to mean?

A. That they wanted -- on the 18th, they wanted to be ready to run the BOP.

MR. COLLIER: Objection to the extent it calls for speculation and lack of foundation.

THE COURT: Overruled.

Go ahead.

THE WITNESS: Well, this was written on Friday the 14th, so the Tuesday would have been the 18th.

EXAMINATION BY MR. LI:

Q. Let's take a look at TREX-144963.1.1.TO.

Is this an e-mail you received from Asbjorn Olsen on May 15th related to the project for stack-on-stack for *DD II*?

08:48:25 A. Yes.
08:48:25 Q. And then, again, it says, "Gents, please note, all
08:48:29 centered around a Tuesday BOP run. We need to target this in
08:48:32 terms of timing."
08:48:34 What did you understand that to mean?
08:48:37 A. Well, we needed to get all the stuff done and ready to go
08:48:40 by Tuesday.
08:48:41 Q. And Tuesday, May 18th?
08:48:43 A. Yes, sir.
08:48:43 Q. Now, down here it says, "Seems like onshore activities are
08:48:49 progressing well."
08:48:50 Were you in charge of onshore activities?
08:48:53 A. I don't know if -- about "in charge," but I was working on
08:48:56 it and had a group working on all the --
08:48:59 Q. And were onshore activities progressing well?
08:49:03 A. Yes. We had already gotten the riser taken care of. The
08:49:10 plugs for the riser, the plates were made, and the connectors
08:49:14 were on their way.
08:49:16 Q. All right. Let's turn to the attachment, which is
08:49:19 TREX-144963.2.1.TO.
08:49:24 What generally is this?
08:49:28 A. It's a -- just a time chart, a Gantt chart.
08:49:35 Q. Now, it's a little difficult to read and it's hard to pull
08:49:39 up, so I'm not going to ask Jimmy to pull it up.
08:49:41 But on line 1, it says, "Subsea engineering tasks,"

and it has a start date and a finish date.

What's the finish date there?

A. 5/18/2010, on Tuesday.

Q. Tuesday, May 18th, 2010.

A. Yes.

Q. And what did you understand subsea engineering tasks to mean?

A. Well, my group was the Subsea Engineering Group, so it was my group of people had to get all of this done.

Q. Okay. Lines 4 through -- call it 7, have to do with riser and piping and welding, isolation plugs.

Is that the holey riser that we were talking about earlier?

A. Yes.

Q. And then underneath, lines 8 through 10, "Function test HC and HC connecter," is that the connector we were talking about?

A. Yes.

Q. Let's go down to line 16, it says, "Methanol in connector, CIW," Cameron Iron Works, "check."

What did you understand that to mean?

A. Well, from memory, that had to do with to check with Cameron on whether or not we could inject methanol into their connector in the event hydrates had formed.

Q. So this was an another hydrate mitigation plan?

A. Yes, sir.

08:51:06 Q. So let's take a look at -- so this is as of May 15th.
08:51:11 Let's move to TREX-144961.1.1.
08:51:21 Is this an e-mail you received from John MacKay on
08:51:26 Saturday May 15th, at 11:41 p.m.?
08:51:28 A. Yes, sir.
08:51:29 Q. And it says, "Earlier today we had a meeting with Hydril
08:51:32 BOP representatives at the BP office regarding what is required
08:51:37 to install a choke onto the *DD II* BOP, which would allow
08:51:41 venting off of excess pressure once the *DD II* BOP has been
08:51:45 landed and latched onto the DWH lower BOP."
08:51:50 That's a lot of acronyms. Could you tell us what
08:51:52 that essentially means?
08:51:53 A. Well, that they wanted to put a subsea choke onto one of
08:52:02 the -- and connect to one of the outlets on the *DD II* BOP so as
08:52:07 to not have a complete hard shut-in. They would be able to
08:52:14 vent off whatever pressure that they deemed as -- once the
08:52:19 pressure got up above what they deemed as the safe zone, they
08:52:23 could vent that pressure off.
08:52:24 Q. Okay. Prior to May 15, 2010, had you ever heard from BP a
08:52:31 concern about venting?
08:52:33 A. Not that I remember.
08:52:34 Q. If you had been told on April 28th, when you first were
08:52:37 considering capping, you know, stack-on-stack options, could
08:52:41 you have designed a choke?
08:52:43 A. Yes.

08:52:44 Q. Just so we're clear, what is a choke?
08:52:49 A. A choke is really a pressure-reducing device. There is
08:52:53 different styles. But it's -- that's exactly it. It's like a
08:52:58 water faucet.
08:52:59 Q. Let's take a look at TREX-14502.1.1.TO.
08:53:06 This is an e-mail from Asbjorn Olsen to you, among
08:53:11 others, on May 17, 2010. References a "conference call this
08:53:15 a.m. to discuss *DD II* BOP venting."
08:53:18 And under the Agenda, it says, "Possible solutions to
08:53:22 the challenge." And I just kind of want to walk through those
08:53:26 with you, if we could.
08:53:26 The first one says, "Failsafe SS choke on pipe ram
08:53:30 outlet."
08:53:30 What does that mean?
08:53:32 A. Well, I would think what he wanted to do was to have a
08:53:40 double-block failsafe valve, which is similar to what we see
08:53:48 here, the yellow piece here, and onto that -- it's connected
08:53:54 onto a pipe, one of the outlets on the pipe rams, and then on
08:53:58 to the back side of that, a subsea choke bolted to the side.
08:54:03 Q. So I'm holding up D-25023A and D-25025.
08:54:11 Is this about what you're talking about?
08:54:12 A. Yeah. It would be a block valve similar to that, and then
08:54:16 on the end you would put a subsea choke.
08:54:19 Q. And then you would run it upward?
08:54:22 A. Yes.

08:54:23 Q. Now, what is the second option?
08:54:28 A. It's talking about venting through a surface test system.
08:54:32 And since there wasn't an opportunity to have drill pipe in the
08:54:37 main bore of the riser, then I take it that he's talking about
08:54:42 venting back up through the choke -- choke line and back up to
08:54:47 surface and going through the choke and kill line manifold.
08:54:50 Q. Would it still go through a side outlet?
08:54:52 A. Yes. It would go through a side outlet, through a
08:54:55 double-block valve, and then the choke line, the lines going up
08:55:00 to -- back up to the surface.
08:55:02 Q. Just like on the model right here?
08:55:04 A. That's correct.
08:55:04 Q. Now, the third option, what is that?
08:55:08 A. Well, the choke manifold on the seabed with a Coflex
08:55:14 jumper from the BOP stack to the manifold.
08:55:16 Q. And what is that?
08:55:18 A. Well, that's what we finally decided to do. When we had
08:55:25 told BP that the subsea choke was not going to be able to be
08:55:32 retrievable, the insert was not going to be retrievable, and
08:55:37 that it would be positioned horizontally, they said, well,
08:55:43 let's go to a different direction.
08:55:45 So they went and had a manifold built to be placed at
08:55:51 the seabed where a Coflexip line could go from that manifold,
08:55:55 that manifold had chokes on it, could connect to the side
08:56:00 outlet of one of the BOPs.

08:56:02 Now, what you're showing here is exactly what we're
08:56:05 looking at. What we've got is a double-block valve that's
08:56:10 bolted on to the side of the ram cavity on the outlet there.
08:56:17 Bolted on. And then we -- in order to connect a Coflexip hose,
08:56:24 you can see that this block is turned at a 45-degree angle to
08:56:28 come out of the BOP stack frame, and a mini collet connector
08:56:34 would attach to this, the top of this and be hydraulically
08:56:41 operated to latch on and a Coflexip hose connected to it to
08:56:45 connect to the subsea manifold where they could vent or produce
08:56:51 back up to the surface.
08:56:52 Q. Were you involved in the construction and design of this
08:56:56 valve with the 45-degree angle?
08:56:59 A. Yeah. It's really -- really pretty simple. It's just a
08:57:04 block with a spool, and it's got a preparation for a mini
08:57:10 collet connector to latch onto it. Because it's a bolted
08:57:15 connection, you can turn it at 45-degree increments just
08:57:19 because of the number of bolts that you have there.
08:57:22 So it's really not something made at 45 degree. It's
08:57:25 just positioned at a 45-degree angle.
08:57:28 But yes, I sent a sketch of that to Russell Bourgeois
08:57:33 down at Cameron in Berwick, and he had a piece that we could
08:57:39 utilize. And he finished it out. And we had that made in
08:57:44 about four days.
08:57:45 Q. For the record, the item I've been holding is D-25025.
08:57:51 This is the valve with the 45-degree angle.

08:58:13 Now, is it fair to say that all of those options, all
08:58:15 of them attach to a side outlet on a ram?
08:58:17 A. Yes.
08:58:18 Q. Whether it's a BOP stack or a capping stack?
08:58:22 A. Yes.
08:58:22 Q. Let's take a look at -- let's take a look at
08:58:41 TREX-144954.1.1.TO.
08:58:43 Now, is this an e-mail that you received from
08:58:46 Asbjorn Olsen at 10:22 p.m. regarding BOP-on-BOP plan?
08:58:52 A. Yes.
08:58:53 Q. And it says a bunch of stuff, and then I've got
08:58:58 highlighted here, "Identify equipment and time necessary to fit
08:59:01 two X valves plus subsea choke on the *DD II* BOP. Needs to be
08:59:06 ROV controllable and not hooked into the BOP control system."
08:59:10 Is that what we've basically been talking about?
08:59:12 A. Yes.
08:59:12 Q. Now, underneath here he says, "Total: Approximately
08:59:16 12 days."
08:59:18 Is that -- you were involved in this process?
08:59:20 A. Yes, sir.
08:59:21 Q. Does about the total of 12 days seem about right for how
08:59:25 long it would take to do all of that?
08:59:26 A. Yes, sir.
08:59:26 Q. Let's take look at TREX-144951.1.1.TO.
08:59:35 Is this an e-mail you received from Asbjorn Olsen on

May 18th, relating to stack-on-stack *DD II* plan?

A. Yes, sir.

Q. And then, again, he says down here, "You will also be aware the team is working on choke outlets for both the dual cap ram BOP and the *DD II* BOP."

First of all, let's just talk about that. What is he saying in that sentence there?

A. Well, that we were going to have provisions for having choke outlets on both the *DD II* BOP and he says "dual cap ram." By that time it was already -- had already gone through a triple capping stack, triple ram capping stack. Sorry.

Q. At that time were you working on both the *DD II* stack option and the capping stack?

A. Yes, sir.

Q. You were building them both?

A. Yes, sir.

Q. And with respect to the choke options, were they both going to attach to a side outlet?

A. Yes, sir.

MR. COLLIER: Objection. There is a lot of leading going on with this witness.

THE COURT: Try not to lead.

MR. LI: Sorry, Your Honor.

EXAMINATION BY MR. LI:

Q. Just looking at this, sir, can you tell just from looking

09:00:49 1 at this whether this is a two-ram stack from the *DD II* or a
09:00:53 2 two-ram stack from the capping stack?
09:00:55 3 A. It's a double ram from -- it's actually the same
09:00:58 4 configuration from both places.
09:01:06 5 Q. Was your view at the time, as of May 18th, consistent with
09:01:19 6 the solution about -- being about 10 to 14 days away from the
09:01:27 7 buff (spelled phonetically)?
09:01:27 8 A. Yes, sir.
09:01:28 9 Q. What's that timeframe?
09:01:29 10 A. Well, that was the time that it was going to take to --
09:01:32 11 Q. I'm sorry. That was a bad question.
09:01:34 12 What does that add up to? The end of May?
09:01:37 13 A. The end of May, yes, sir.
09:01:38 14 Q. And so even though BP only told you about the venting
09:01:43 15 option on May 15th, you still were going to be able to have a
09:01:48 16 venting option by the end of May?
09:01:50 17 MR. COLLIER: Objection, Your Honor. Leading.
09:01:55 18 THE COURT: You're continuing to ask leading questions.
09:01:57 19 MR. LI: I apologize, Your Honor.
09:01:58 20 EXAMINATION BY MR. LI:
09:01:58 21 Q. Sir, when did BP tell you about the venting option?
09:02:03 22 A. About May 15th.
09:02:04 23 Q. When, according to this, would you be able to complete the
09:02:08 24 venting option?
09:02:09 25 A. Well, 14 days from the -- would have been around the 2nd

day of June.

Q. Let's take a look at TREX-145038.1.1.

Mr. Turlak, is this an e-mail you received on May 24th?

A. Yes, sir.

Q. It's from Iain Snedden. It says, "Gents, for your information, P&ID of subsea venting system that shall be hooked up to the *DD II* BOP or three-ram capping assembly." What did you understand this to mean?

A. Well, it was the piping and instrumentation drawing for the venting system that we were going to use on -- either way, on the *DD II* or the capping stack.

Q. Let's turn to TREX-145038.1.2. Two e-mails down in this chain, what does -- what does Mike Brown say to James Wellings about the venting manifold?

A. It says, "It will be ready to ship Thursday p.m.," which would be the 27th.

Q. Let's take a look at TREX-145038.3.1.

This is a diagram that's been attached. I'm not going to blow it up because it's actually kind of hard to read, but if you could sort of walk us through what is it?

A. Well, if you're all the way to the left-hand side, you see the *Horizon* BOP. That would be the lower portion of the BOP. Right above it is -- in the box is the *DD II* BOP.

You see there's a line coming away from the *DD II*.

What's hard to read is, is that says -- that actually reads -- I've seen it from a better copy of this. It actually --

MR. LI: I'm sorry, if you could just blow that up.

THE WITNESS: -- it says 45 degrees. That's really -- and then over to a box that says CIW Number 6. Well, that's no different than what's shown here is that block turned at a 45-degree angle, and the preparation at the end of the gray piece there is actually a Cameron number 6 clamp hub prep that a mini collet connector can latch onto, and it would be hooked to a line back to the manifold.

MR. LI: For the record, I'm holding up, and what we're talking about is, D-25025.

EXAMINATION BY MR. LI:

Q. Now, if we could pull the schematic outward. I think, if you hit the upper right-hand corner, it will clear it.

Now, so then there's a diagnosis of a bunch of valves and what have you that are sort of in the center area here. What is this?

A. Well, it's a busy drawing, for one thing, but it's showing that -- a line going back to the vent manifold, going through a valve Number 7 -- an MV-7 is 4 1/16" 10M gate valve. Then we've got a cross here.

What we can do is we can isolate and flow connect to either come in and go through MV6 up to a choke that looks to vent to nowhere or vent out to sea, that's ROV adjustable, or

it can go -- which would be choke valve Number 2, or it can go in the other direction, and there's a choke valve Number 1.

Q. Why don't you just put your finger right on those things, and you'll see it will pop up.

A. This is choke valve Number 1, right there.

Q. Then choke valve Number 2 is where?

A. At the very top.

Q. Now, over here -- and this assembly here is essentially the manifold?

A. Looks to be. I mean, they've got a line drawn around it to -- identifying it as the manifold.

Q. So now over here on the right, there's a phrase that says, "Future." What do understand this assembly here to mean?

A. Well, it looks like, since you've got a line coming out of where -- coming out of the back side of the block where it's MV5, and then connecting over to a line going over to future, then this could go over to a Christmas tree vent, which would -- to me, that would say -- could say that this was going to be a tree they were going to sit down at the surface, and able to also control it through the choke -- through a choke, which was CV1, and maybe send it back up to surface or through a long flow line to some other vessel or -- I don't know, this was a future option we never talked about that.

Q. Okay. Now, when was this ready to ship?

A. Supposed to be the p.m. -- the afternoon of Thursday, the

09:07:49 27th.
09:07:49 Q. May 27th?
09:07:50 A. May 27th, yes, sir.
09:07:51 Q. Let's take a look at TREX-1449861.1.TO. If you could hit
09:08:04 the corner, where it says, "undo." You've got to hit it a
09:08:04 bunch of times.
09:08:04 THE COURT: If you hit the bottom left corner, you'll
09:08:04 clear it.
09:08:04 EXAMINATION BY MR. LI:
09:08:19 Q. Is this another project plan you received from
09:08:22 Asbjorn Olsen on May 27, 2010?
09:08:26 A. Yes, sir.
09:08:26 Q. If you could just read the highlighted portion.
09:08:29 A. "We cannot allow any single little change to come from BP
09:08:33 on these assemblies. It's not going to be acceptable to do
09:08:37 more changes now. The Team has spent two weeks on this, and we
09:08:42 need to draw a line in the sand if they shall have anything to
09:08:47 run any time soon."
09:08:48 Q. In your experience working on the Capping Team, did BP
09:08:53 come up with a lot of little changes?
09:08:55 A. Well, there were changes, yes. I mean, we went from the
09:08:59 *Enterprise* to the *DD II*, and then venting for the *DD II*, and
09:09:07 still wanting the capping stack to be run concurrently during
09:09:13 all that time. So yes, there were changes made.
09:09:15 Q. Did any of these changes delay deployment of any of these

devices?
A. Well, yes, sir. If you go back to the planning, we were going to have the -- the *DD II* was going to be run on the Tuesday, the 18th. Then after we found -- found out that they wanted venting, that was going to delay it, what Asbjorn saw it as is 14 days.
Q. Let's take a look at TREX-144986.2.1. Is this the -- this is similar to that project plan we saw earlier?
A. Yes, sir.
Q. Now, what's the start date of line 23, "BOP ready to run"? What's the start date?
A. May 3rd.
Q. I think it says 6th. I don't want to lead you there.
A. I'm sorry. Oh, I'm sorry. June the 6th, 2010.
Q. At this time, did you view this as a realistic completion time, even with all the modifications that were being asked for?
A. Yes, sir.
Q. Let's take a look at TREX-114985.1.1.TO.
[REPORTER'S NOTE: Exhibit TREX-114985.1.1.TO. was corrected later on in the record by Mr. Li to TREX-144985.1.1.]
This is an e-mail from Chris Roberts from BP dated the same day, to you, and it has the latest well capping schedule update.
If we could pull up TREX-144985.2.1.TO. Just at the

bottom, what does BP say the finish date is for the BOP-on-BOP installation?

A. BOP-on-BOP installation would be June the 7th, 2010.

Q. Even with all the various changes that had been asked for?

A. Yes, sir.

Q. Now, let's take a look at TREX-7104.3.1.TO. This is an e-mail from Jim Wellings, James Wellings, and you were included on the chain. But did you eventually receive this e-mail?

A. Yes, sir.

Q. He writes, "BP has decided to go another route and will not be doing the BOP for a while."

When you first learned this, were you surprised?

A. Yes, sir.

Q. Why is that?

A. We were so close. We had come a long way from the *Enterprise* and the *DD II*, and then the *DD II* with the venting option, had the equipment ready, and then their decision not to do it.

Q. Did you ever receive an explanation from BP why they had shelved the BOP-on-BOP?

A. No.

Q. Now, did anyone say to you that, well, we're not going to do the BOP because there is problems with hydrates?

A. No, sir.

Q. Did anyone say to you from BP that they didn't want to do

09:12:20 the BOP-on-BOP option because there was a problem with
09:12:24 releasing the LMRP?
09:12:25 MR. COLLIER: Objection, Your Honor, leading.
09:12:27 THE COURT: Sustained.
09:12:28 EXAMINATION BY MR. LI:
09:12:29 Q. The e-mail continues, "David Cameron, Rob Turlak and
09:12:34 Charles Curtis, BP would still like the option of the three-ram
09:12:38 capping stack for deploying a flex joint overshot or a subsea
09:12:43 tree."
09:12:44 What did you understand that to mean?
09:12:46 A. That they still wanted us to move ahead and try to
09:12:49 complete the three-ram capping stack as soon as possible.
09:12:52 Q. Let's take a look at TREX-7104.2.1. This is a May 30th
09:13:01 e-mail from Charles Curtis to John -- Schwebel?
09:13:01 A. Schwebel, yes, sir.
09:13:08 Q. -- and David Cameron, copying you, dated May 30th, 2010.
09:13:12 If you could just read the highlighted portion for us?
09:13:14 A. "The capping stack has gone as far as we can. All of the
09:13:17 equipment is stacked up and only waiting on the control panels
09:13:20 from Oceaneering to test the stack. These panels should be
09:13:25 completed by Tuesday, June 1st, shipped to Cameron Berwick,
09:13:30 hooked up and tested with the three-ram capping stack
09:13:34 completion. Date ready to ship offshore, Friday, June 4th."
09:13:38 Q. Now this is the capping stack, not the BOP, right?
09:13:42 A. Correct.

09:13:42 Q. Did you agree with Mr. Curtis's estimate that it was going
09:13:49 to be ready, the entire capping stack assembly was going to be
09:13:54 ready to be shipped offshore June 4th?
09:13:56 A. I thought that was slightly ambitious, but only because
09:13:59 there were going to have to be people involved with the testing
09:14:03 from both BP, the MMS, Coast Guard, and whoever else wanted to
09:14:10 come and watch it, so I thought it would be a few more days
09:14:15 past June 4th.
09:14:15 Q. Not months, though?
09:14:17 A. No, sir.
09:14:17 Q. Now, I'm going to move to the final part of this. We
09:14:24 talked about earlier --
09:14:25 MR. LI: Your Honor, if I can approach over here, there
09:14:30 are some models.
09:14:30 EXAMINATION BY MR. LI:
09:14:31 Q. We talked earlier about building BOP stacks as sort of
09:14:36 being a modular exercise.
09:14:38 A. Yes, sir.
09:14:38 Q. I'm going to build one with you. So I have here D-2506 --
09:14:46 I'm sorry, 250261. What is this?
09:14:51 A. That's a model of an HC collet connector with a funnel on
09:14:58 the -- bolted to the bottom of it to help guide it onto the --
09:15:02 onto whatever we were landing it on, whether it's the lower
09:15:09 *Horizon* BOP stack or a transition spool.
09:15:11 Q. Now, this funnel here operates how?

09:15:17 A. Well, when you're -- it's so -- it will guide you onto
09:15:22 whatever you're landing on. So it's going to -- it's going to
09:15:25 try to -- it's going to act as the bottom of this cup. If
09:15:29 you're landing on it here, you can be off by a little bit, but
09:15:32 it will guide you where you need to go.
09:15:34 Q. Is this standard equipment?
09:15:36 A. Yes.
09:15:36 Q. Is this off the shelf?
09:15:38 A. Yes.
09:15:41 Q. Next, we have -- what is this? This is .2.
09:15:45 A. This is a single-ram BOP similar to the one that's on the
09:15:50 *DD II*.
09:15:51 Q. It has -- what are these?
09:15:54 A. Side outlets.
09:15:55 Q. Just like on the BOP?
09:15:57 A. Yes, sir.
09:15:58 Q. We land it here. Obviously, we're not landing this
09:16:02 subsea; we're building this in the yard.
09:16:04 A. That's right.
09:16:04 Q. So how do we attach that?
09:16:06 A. There's a studded connection there that has the
09:16:12 preparation -- studded connection is a series of bolts that are
09:16:17 tapped into the top of the single BOP in the same bolt circle
09:16:24 diameter as what the flange would have on it, and the studs
09:16:27 would be screwed into the top of the body. A ring gasket would

be placed in the ring group preparation, and the double BOP would be brought down and bolted onto the top of the single.

Q. Then the double is Number 3?

MR. COLLIER: Your Honor, if I may lodge an objection. To the extent that this is talking about building a capping stack on the surface, I don't see the relevance it has with respect to this particular incident.

THE COURT: What are you trying to demonstrate?

MR. LI: I'm just showing how these capping stacks are put together, and it's essentially the same as the BOP. They're made from standard parts.

MR. COLLIER: Your Honor, I think here counsel is going much further than that. He's trying to show how it builds, which is fine if it's on the surface, but the issue is whether or not attaching it subsea --

MR. LI: We're just explaining that the capping stack and the BOP are the same thing.

THE COURT: I think you've established that. The witness has said that, right?

THE WITNESS: Yes, sir.

MR. LI: Well, then I'll put the LEGOs away.

The last part, Your Honor, if I may, just with the valves and the venting options. Is that all right, Your Honor?

THE COURT: You're on the clock. It's your clock.

09:17:33 MR. LI: Yes, sir.
09:17:35 EXAMINATION BY MR. LI:
09:17:36 Q. So there are some valves on the side. Is this how the
09:17:39 valves were eventually configured?
09:17:41 A. That's correct, sir.
09:17:42 Q. Any different than what's on the -- I mean, the exact
09:17:47 placement?
09:17:47 A. There is no kill lines hooked up to that one, but --
09:17:52 because that was standalone unit, and it wasn't going to be
09:17:55 connected back up to surface. But a subsea choke was attached
09:17:59 using a mini collet connector and latched onto the -- on the
09:18:02 outlet of the valve.
09:18:03 Q. Is that a difficult operation to attach the subsea choke
09:18:09 onto a valve?
09:18:10 A. It's been done with ROV's in the past, yes.
09:18:12 Q. Mr. Turlak, in your time on the Capping Team, did you ever
09:18:24 encounter an engineering problem that you could not solve?
09:18:26 A. No, sir.
09:18:29 MR. LI: Your Honor, I have no more questions at this
09:18:30 time.
09:18:30 THE COURT: All right.
09:18:30 MR. COLLIER: Good morning, Your Honor.
09:18:30 CROSS-EXAMINATION BY MR. COLLIER:
09:19:26 Q. Good morning, Mr. Turlak.
09:19:29 A. Good morning.

09:19:29 Q. My name is Paul Collier. I'll be asking you questions
09:19:33 today on behalf of BP, and I have you on cross-examination.
09:19:35 Now, you found out about the blowout with the
09:19:39 *Deepwater Horizon* on April 21st, correct?
09:19:41 A. Yeah, I guess, somewhere around there.
09:19:50 Q. It was very close, within 24 hours or so?
09:19:53 A. Yes, sir. Within 24 hours.
09:19:55 Q. You were immediately asked to play a role with respect to
09:19:58 responding to the incident, correct?
09:19:59 A. Actually, the next day.
09:20:00 Q. I think you mentioned earlier on direct examination, you
09:20:06 were assigned to a team to look at solutions for capping the
09:20:10 well, correct?
09:20:11 A. Yes, I was asked to go over to BP and be a part of that
09:20:15 meeting, yes.
09:20:15 Q. This, I think you've mentioned in direct as well, became
09:20:20 known as the Well Capping Team, correct?
09:20:22 A. Yes. Yes, sir.
09:20:23 Q. Now, the Well Capping Team worked throughout the response
09:20:29 from that early timeframe after the incident to develop a
09:20:33 capping solution for the well, correct?
09:20:34 A. That's correct.
09:20:34 Q. There were engineers from BP, Transocean, Cameron, and
09:20:41 Wild Well Control who worked on the Well Capping Team, correct?
09:20:45 A. Yes, sir.

09:20:45 Q. You would agree that Wild Well Control had expertise
09:20:52 responding to blowouts, correct?
09:20:53 A. Yes, sir.
09:20:53 Q. They also had expertise dealing with subsea engineering
09:20:57 issues, correct?
09:21:00 A. Yeah, I guess.
09:21:00 Q. Now, Cameron and Transocean employees who were assigned to
09:21:04 work on the Well Capping Team, you agree that they had subsea
09:21:09 expertise, correct?
09:21:09 A. Yes. There were some -- it was -- at different times,
09:21:15 different people were called in, depending on the situation,
09:21:17 depending on what rig was going to be used. So we might have
09:21:22 rig managers come in for those specific rigs and other people
09:21:27 from those specific rigs, depending on what we were talking
09:21:31 about that day or that time.
09:21:34 Q. You would agree that the Well Capping Team operated in a
09:21:39 very collaborative environment?
09:21:40 A. Yes, sir.
09:21:41 Q. You agree that at all times Transocean had employees
09:21:44 assigned to the Well Capping Team, true?
09:21:46 A. Yes.
09:21:46 Q. You would agree that the employees that Transocean had
09:21:50 assigned to the Well Capping Team, at least one or more of
09:21:53 those employees would have had subsea engineering expertise?
09:21:57 A. Yes, sir.

09:21:58 Q. You would agree that it was logical to have a group of
09:22:03 people that had expertise relating to subsea issues working on
09:22:08 the capping solutions for the *Deepwater Horizon* incident,
09:22:08 correct?
09:22:11 A. Sure.
09:22:11 Q. Now, with respect to the Transocean employees who worked
09:22:17 on the Well Capping Team, I just want to go through a couple of
09:22:20 those names. I think earlier we've seen Ian Snedden, does that
09:22:26 name ring a bell?
09:22:27 A. That's correct.
09:22:30 Q. Ian is a Transocean employee, correct?
09:22:32 A. That's correct.
09:22:33 Q. Does Mr. Snedden have subsea expertise?
09:22:36 A. His is more operational.
09:22:39 Q. Mr. Snedden was assigned to work at BP as part of the Well
09:22:44 Capping Team; is that correct?
09:22:45 A. That's correct, for a period of time.
09:22:46 Q. John Mackay, he was a Transocean employee who was assigned
09:22:51 to work on the Well Capping Team?
09:22:53 A. John Mackay, yes.
09:22:54 Q. Mr. Mackay has subsea engineering experience?
09:22:59 A. Some subsea engineering experience, yes.
09:23:01 Q. Geoff Boughton, he was a Transocean employee who was
09:23:05 assigned to work on the Well Capping Team?
09:23:08 A. Yes.

09:23:08 Q. You would agree that Mr. Boughton has subsea engineering
09:23:12 experience, correct?
09:23:13 A. Yes, sir.
09:23:13 Q. Mr. Boughton specifically has BOP-related experience,
09:23:13 correct?
09:23:17 A. Yes, sir.
09:23:18 Q. In fact, I believe, at least at this point in time,
09:23:20 Mr. Boughton's title was subject matter expert; is that
09:23:23 correct?
09:23:24 A. I don't remember, but I'll take your word for it.
09:23:27 Q. You would agree that Mr. Boughton has expertise relating
09:23:31 to BOPs, correct?
09:23:32 A. Yes, sir.
09:23:33 Q. Again, he was assigned to work on the Well Capping Team?
09:23:36 A. Yes.
09:23:36 Q. Dean Williams was another Transocean employee who was
09:23:39 assigned to work on the Well Capping Team, correct?
09:23:42 A. Yes. I mean, Geoff and Dean didn't necessarily attend all
09:23:47 the meetings, but they worked and reported to me. So my being
09:23:55 part of it made them part of it, yes.
09:23:57 Q. Mr. Williams had subsea engineering expertise?
09:24:00 A. Yes, sir.
09:24:01 Q. Dave Cameron, was he also a Transocean employee who worked
09:24:05 on the Well Capping Team?
09:24:06 A. Yes, sir.

09:24:07 Q. Mr. Cameron, does he have subsea engineering expertise?
09:24:11 A. Yeah, he was more a well control guy.
09:24:14 Q. Mr. Cameron had, in your words, well control experience?
09:24:19 A. Correct.
09:24:19 Q. Your understanding is Mr. Cameron worked for an extended
09:24:24 period of time on the Well Capping Team, correct?
09:24:26 A. Yes.
09:24:26 Q. These were all Transocean employees who, at some time or
09:24:30 another, were working as part of the Well Capping Team,
09:24:32 correct?
09:24:32 A. Yes, sir.
09:24:32 Q. Now, Mr. Mackay and Mr. Snedden, they were Transocean
09:24:38 employees who were actually embedded at BP's Westlake office,
09:24:42 correct?
09:24:42 A. Yes.
09:24:43 Q. So they were actually in the same conference room working
09:24:47 with other members of the Well Capping Team?
09:24:49 A. Correct.
09:24:50 Q. Now, you were not embedded at any period of time during
09:24:56 the response at BP's offices as part of the Well Capping Team,
09:25:00 correct?
09:25:00 A. I went over there periodically, more so early on; but, as
09:25:05 the time went on, I would maybe go once or twice a week to work
09:25:10 with BP, just when I was asked to. Otherwise, I was getting
09:25:15 the equipment ready to go.

09:25:16 Q. You were stationed predominantly at Transocean's Parktown
09:25:22 offices?
09:25:24 A. That's correct.
09:25:24 Q. You understand that at BP's Westlake office, the Well
09:25:32 Capping Team worked in close proximity to each other, correct?
09:25:37 A. The Well Capping Team was usually in the same conference
09:25:40 room all day long.
09:25:41 Q. They were working long hours, correct?
09:25:43 A. Yes.
09:25:43 Q. In fact, everybody who was a member of the Well Capping
09:25:47 Team was working long hours at that point; is that correct?
09:25:49 A. That's correct.
09:25:49 Q. The Well Capping Team had daily meetings that were taking
09:25:54 place at the BP offices, correct?
09:25:57 A. That's right.
09:25:57 Q. During those meetings, they would review the work that was
09:25:59 ongoing with the capping solutions?
09:26:01 A. Yes, sir.
09:26:01 Q. These daily meetings that the Well Capping Team held,
09:26:06 those began shortly after April 20th, correct?
09:26:12 A. Early on, it wasn't formalized. These were general
09:26:15 meetings that were held for a few days after the incident. So
09:26:24 there were people from other groups also in those general
09:26:27 meetings. It wasn't till probably the following week that it
09:26:31 was broken out into a Well Capping Team led by Jim Wellings.

09:26:36 Q. After it became more formalized, there were daily
09:26:36 meetings --
09:26:36 A. Correct.
09:26:41 Q. -- of the Well Capping Team?
09:26:43 A. Yeah.
09:26:43 Q. You would agree that during the response the Well Capping
09:26:46 Team working in close proximity continued to have meetings and
09:26:50 discussions with each other?
09:26:50 A. Sure.
09:26:52 Q. During those daily meetings that were held after it became
09:26:58 more formalized, Transocean employees were always part of those
09:27:01 meetings, correct?
09:27:05 A. Yeah, at least the ones -- yes, as far as I know.
09:27:07 Q. You didn't attend all of the meetings that were held by
09:27:10 the Well Capping --
09:27:10 A. No, sir, I did not.
09:27:11 Q. In fact, you didn't go most mornings to those meetings
09:27:14 that were held?
09:27:15 A. No. Somebody had to do the work.
09:27:17 Q. I think you described yourself as the operations guy on
09:27:26 the team, correct?
09:27:29 A. Well, I'm an engineer with experience on getting BOPs
09:27:35 assembled and tested and working out the details, so you can
09:27:41 call me whatever you like.
09:27:43 Q. Okay. Now, you would agree that everybody on the team,

09:27:59 whether it was Wild Well Control or Cameron or Transocean or
09:28:03 BP, they all wanted to find a solution to stopping the flow of
09:28:06 oil, correct?
09:28:08 A. Yes, sir.
09:28:08 Q. It was the Well Capping Team's role to find the best
09:28:13 solution to stop the flow of the well, whether it was the
09:28:16 BOP-on-BOP or the two-ram capping stack or the three-ram
09:28:20 capping stack, correct?
09:28:21 A. Yeah, I don't think we would have wanted to settle for
09:28:23 less. What we wanted to do was to utilize the best solution
09:28:29 and the most timely solution.
09:28:31 Q. The Well Capping Team wanted the best and safest equipment
09:28:38 to use the cap the well, correct?
09:28:39 A. Yeah, I think the safest goes without saying, that
09:28:45 anything that we were going to do, we wanted to be safe.
09:28:47 Q. Now, you agree that the team, in attempting to find the
09:28:54 best solution for capping the well, it followed a guiding
09:28:57 principle or mantra; would you agree with that?
09:29:01 A. Which is what?
09:29:02 Q. Let me ask a more direct question. Did the Well Capping
09:29:06 Team have the mantra of don't make things worse?
09:29:11 A. I think that's what we were told. That's right.
09:29:14 Q. You would agree that that was a good guiding philosophy?
09:29:17 A. It's a reasonable philosophy. I mean, some things are --
09:29:22 you try not to make anything worse; but, if you have the

opportunity to make it better, and you have mitigated the risks, then sure, there is always the opportunity to make it worse, but hopefully you can go ahead and take care of the problem.

Q. As a general principle, though, your team had the mantra of don't make it worse, correct?

A. I think that's what I was told, yes.

Q. Now, the Well Capping Team began its work within a couple days of the April 20th incident, correct?

A. Well, as I said before, we had general meetings, and there were people that weren't eventually in the Well Capping Team because all the groups were together in the first few meetings. I mean, these were huge meetings.

As I said, the following week is, the best of my memory, when we got started as a group that was -- either it was working on both the BOP-on-BOP or the capping stack.

Q. Within a couple days of the incident --

A. It was being discussed, yes, but not as a specific group.

Q. So there were discussions within days of the incident brainstorming about the capping solutions, correct?

A. Correct.

Q. There were efforts that were undertaken within a couple days to begin to put equipment together for those capping solutions, correct?

A. I don't know that you can say a couple of days. It might

have been a few more days than that, but soon after. I don't know as to how you can qualify it to a couple of days because, you know, the rig was still burning for a certain period of time afterwards, and there was still the hope to get the well shut in for a couple days after.

Q. Now, a couple days after the blowout, you attended a meeting at BP where capping solutions were discussed?

A. I don't know if it occurred a couple of days later, but sometimes during the end of that week. I don't remember that it was a couple of days later, but a few days later we met, certainly met.

Q. So you would say within a few days of April 20th, you had met at BP's offices to discuss capping solutions?

A. Yes.

Q. Now, at that meeting, were there representatives from BP, Transocean, Cameron, and Wild Well Control?

A. Yes. As well as others.

Q. And during this meeting, the group discussed various capping options that could be used for stopping the flow of the well?

A. Well, there was also discussions about who was going to do what. That's really fuzzy. But to the best of my recollections, who was going to do what, what other things were occurring, what other things were happening. And then at that -- whatever that first meeting I went to, I don't know --

I don't remember what day it was, Wild Well Control was there and had already started talking about putting a two-ram BOP on top of it -- on top of the lower BOP stack to try to stop the flow.

Q. So there was already an organization in place at that point in time to start to develop the capping solutions?

A. Yeah. I think there was brainstorming from within already, and, you know, trying to put another BOP on top of one that's blowing out seemed to be the obvious solution.

Q. And the BOP-on-BOP option you discussed, that was one that came out shortly after the incident?

A. Yeah. It was the next week.

Q. You say within a week of the incident the idea for a capping solution had been generated and there was a team working on it?

A. I didn't write it down until the 28th. I don't know if -- you know, I might have discussed it the day before, so yeah, I guess you could say within a week.

Q. At least as of the 28th, there was a solution that was identified and a team was working on it?

A. Well, it's something I wrote down anyway.

Q. Now, you agree that the BOP-on-BOP option and the capping stack option were being worked on in parallel by the Capping Team, correct?

A. Yes.

09:34:06 Q. Now, we've talked a little bit about your role with
09:34:15 respect to the Well Capping Team. And I think we've talked
09:34:20 about the fact that your role was to take the ideas that were
09:34:22 agreed upon by the Well Capping Team and then make sure the
09:34:25 work got done, right?
09:34:26 A. Well, there was always details that had to be worked out.
09:34:30 And I saw -- the small group that I had of Dean, William and
09:34:37 Geoff, I had a designer there available, and we had to work out
09:34:43 the details that the guys talked through in the Well Capping
09:34:52 Team and find the equipment that they wanted to utilize.
09:35:00 Q. You weren't dealing with assessing the risks associated
09:35:03 with installing either the BOP-on-BOP or the capping stack,
09:35:03 correct?
09:35:11 A. No, I usually missed those meetings.
09:35:13 Q. There were discussion teams back at BP's offices with
09:35:18 other members of the Well Capping Team that were looking at the
09:35:22 risks associated with actually installing the BOP-on-BOP?
09:35:25 A. That's right. I think there was a peer group that looked
09:35:28 at the HAZID. There was a group that worked on the actual
09:35:34 running procedures.
09:35:36 As I said earlier, those were for a specific rig. We
09:35:40 got more input in from the people for that rig for doing
09:35:43 specific jobs.
09:35:44 So as far as the -- the risk assessment, I think what
09:35:53 BP called it was a hazard identification and assessing those

hazards and how to mitigate those hazards. But, yeah, there was a large group of people involved.

Q. And that was not your role to be part of that risk assessment?

A. I might have been asked to go into one of those, but usually I didn't get involved in that.

Q. Now, with respect to your role, you didn't have all the information associated with all the risks that were assessed as far as putting on either the BOP-on-BOP or the capping stack, correct?

A. Probably not. I mean, some of the things I got copied on, as far as minutes from the meetings, but some things I didn't.

Q. And your role on the team, you were not presented with the specific risks associated with the various capping ideas, correct?

A. Not all of them.

Q. Now, you never participated in any meetings with the Unified Command?

A. No.

Q. And you never participated in any meetings with government scientists or experts for providing input relating to the capping solutions?

A. No.

Q. Now, in your role with the Well Capping Team, you didn't know what information was being used to make decisions about

09:37:19 whether to go with a three-ram capping stack or the BOP-on-BOP
09:37:23 option, correct?
09:37:26 A. No.
09:37:26 Q. And you would not substitute your judgment for the
09:37:30 judgment of others who considered all the risks associated with
09:37:33 the various capping options in ultimately deciding which option
09:37:37 to use?
09:37:39 A. That's an open-ended question, because if I didn't have
09:37:42 all the information, I couldn't necessarily make a decision, so
09:37:46 I guess not.
09:37:46 Q. Now, I would like to talk about the BOP-on-BOP option that
09:37:52 was considered and what you've talked about earlier today. And
09:37:55 if we can bring up D-23767-1, please.
09:38:03 Now, Mr. Turlak, do you see that? It's kind of a
09:38:07 simplified depiction of the BOP-on-BOP option, correct?
09:38:10 A. Sure.
09:38:10 Q. And to be clear, the lower part that's shown there is the
09:38:18 lower half of the *Deepwater Horizon* BOP stack, correct?
09:38:21 A. Yes, sir.
09:38:22 Q. And this is the -- showing that the LMRP has actually been
09:38:28 removed from the *Deepwater Horizon* BOP stack, correct?
09:38:30 A. Yes, sir.
09:38:30 Q. And so the plan for the BOP-on-BOP option that the Well
09:38:35 Capping Team developed was to land the capping stack -- I'm
09:38:37 sorry -- to land the capping BOP on top of the lower BOP stack,

correct?
A. Yes, sir.
Q. And the LMRP would be removed, is that right?
A. Yes, sir.
Q. Now, did the Well Capping Team ever look at or ever engineer any ways of being able to attach the capping BOP on top of the LMRP?
A. Did they look at ways of attaching it?
Q. To the top of the LMRP.
A. Yes.
Q. And was that something that the team had actually engineered, was attaching the BOP on top of the LMRP?
A. We engineered the portion of -- of landing it on top of the flex joint. That's what you're asking about, right?
Q. Correct, yeah.
THE COURT: No. I think he's asking you whether it was considered possible or feasible to land the *Enterprise* BOP on top of the LMRP without removing it.
THE WITNESS: I don't think that was discussed, to the best of my knowledge. Now, it might have, but I don't think so.
EXAMINATION BY MR. COLLIER:
Q. You don't recall the Well Capping Team ever discussing attaching the *Discoverer Enterprise* -- you don't recall the Well Capping Team having any engineering discussions about

attaching the *Discoverer Enterprise* BOP or the *DD II* BOP on top of the LMRP of the *Deepwater Horizon* stack?

A. No, sir, not to my knowledge.

Q. Now, what this depiction shows when the LMRP would be removed, you would have a hydrocarbon plume flowing through the lower BOP stack, correct?

A. Yes.

Q. And you would agree with me that because of the hydrocarbon plume that would be flowing through the lower BOP stack, that would add some level of complexity in landing the capping BOP on top of the lower BOP stack, correct?

A. Well, I mean, based on what I had looked at early on, the actual velocity and the force from that velocity based on stress engineering's work, it was the -- the force would be very little based on what -- from what I saw, is that at 5,000 barrels per day, it was like a 7-foot -- 7-foot per second velocity.

So if you've got something hanging up above it with *Enterprise* that's 640 -- 670,000 pounds around or the *DD II* that's 720,000 pounds, I don't think you would have to worry about it with a velocity of 7-feet per second.

Q. And you're talking about the forces that would be generated by the hydrocarbon plume on the BOP, correct?

A. Yeah. And that was work that was already done by stress engineering.

09:41:55 Q. Would you agree with me that there were other concerns
09:41:58 that the Well Capping Team raised with landing the BOP on top
09:42:03 of the *Deepwater Horizon* BOP lower stack in the hydrocarbon
09:42:08 plume other than the forces that you just discussed?
09:42:11 A. Yeah. There was a concern about this -- the forces going
09:42:18 up -- I mean, the hydrates being created on the interior
09:42:27 portion of the bore of the BOP, and they were initially
09:42:30 concerned with -- with this gas, once it got up into the bore,
09:42:36 about it going up to surface. But we took care of that with a
09:42:40 perforated riser and the plugs in the riser.
09:42:44 Q. You mentioned there was a concern relating to formation of
09:42:46 hydrates during the landing process?
09:42:49 A. That's correct.
09:42:49 Q. And that was one of the engineering issues that the team
09:42:51 had to address and mitigate before the BOP-on-BOP option was
09:42:55 ready to --
09:42:57 A. That's right.
09:42:57 Q. -- be installed?
09:43:01 A. The same way we did it on the capping stack.
09:43:03 Q. And with respect to the BOP-on-BOP option and landing in
09:43:09 the hydrocarbon plume, was it also an issue with respect to
09:43:13 visibility in being able to push the capping BOP or the
09:43:20 *Discoverer Enterprise* BOP onto the lower BOP stack?
09:43:26 A. It might have been. It's a good picture of a *Horizon* BOP
09:43:38 landing out on the lower *Horizon* BOP, though.

09:43:39 Q. I have my graphics people to thank for that.
09:43:44 A. Yeah. Whatever's easy.
09:43:45 Q. Now, earlier in your direct examination you were shown an
09:43:47 animation from May 6th. Do you recall that?
09:43:49 A. Yes, sir.
09:43:50 Q. Now, you agree that on May 6th not all of the risks for
09:43:54 the BOP-on-BOP option had been mitigated at that time, correct?
09:43:59 A. I would expect not.
09:44:00 Q. And with respect to that animation that was shown, at that
09:44:07 point in time there was no hydrate mitigation in place,
09:44:07 correct?
09:44:14 A. It wasn't mentioned, no, but it was something that could
09:44:17 have been taken care of fairly easy.
09:44:19 Q. But it wasn't -- taking a step back. Hydrate mitigation,
09:44:25 or the efforts to hydrate mitigate, were not shown in that
09:44:29 May 6th animation?
09:44:30 A. That was a general type of arrangement. I mean, there
09:44:32 were a lot of things that weren't shown in that video.
09:44:34 Q. And also didn't show any venting of the BOP-on-BOP option,
09:44:39 correct, in the May 6th animation?
09:44:40 A. Yeah. It wasn't even discussed at that point in time.
09:44:43 Q. And it also did not show any use of a subsea choke to be
09:44:47 able to create a soft shut-in, correct?
09:44:51 A. Yeah. You would have had to look in the -- you know, look
09:44:54 in the future to see all that, because that wasn't discussed

09:44:57 until two weeks later.
09:44:58 Q. So those were risks that were identified for the
09:45:02 BOP-on-BOP option after the May 6th animation was created,
09:45:05 correct?
09:45:05 A. Yes.
09:45:06 Q. Now, you discussed on direct examination this incident in
09:45:13 Singapore when you were working for Cameron, correct?
09:45:16 A. Yes, sir.
09:45:16 Q. And this was 1988, correct?
09:45:20 A. Yeah, '88, '89. I mean, I don't want to be too specific.
09:45:23 Q. And I think you mentioned that at the time that Cameron
09:45:27 and yourself became involved that the LMRP had already been
09:45:30 disconnected; is that correct?
09:45:31 A. That's correct.
09:45:31 Q. And so you weren't involved in any of the discussions
09:45:34 relating to removal of the LMRP, correct?
09:45:37 A. No.
09:45:37 Q. And you weren't involved in any kind of risk assessments
09:45:41 that were performed -- or may have been performed before you
09:45:45 arrived as far as removal of the LMRP, correct?
09:45:47 A. No.
09:45:47 Q. And I think on direct you describe it as a gas-bubbling
09:45:54 well?
09:45:55 A. Correct.
09:45:55 Q. And what do you mean by *gas-bubbling well*?

09:46:01 A. It was only gas.
09:46:02 Q. So we weren't dealing with a hydrocarbon plume like we had
09:46:07 in the *Deepwater Horizon* incident, correct?
09:46:10 A. Well, it wasn't a gas/oil mixture. It was just gas and it
09:46:15 was steadily bubbling out, so yeah, you could say you could
09:46:21 have a plume, but it would be a small one.
09:46:22 Q. So you didn't have the same type of hydrocarbon plume that
09:46:26 you were landing the *Discoverer Enterprise* BOP or the *DD II* BOP
09:46:33 as you did on the *Deepwater Horizon*?
09:46:34 A. That's correct.
09:46:34 Q. Now, you talked on your direct examination about the
09:46:45 *Discoverer Enterprise* BOP as being the first BOP that was
09:46:49 considered with the BOP-on-BOP option, correct?
09:46:52 A. Yes, as far as I know.
09:46:53 Q. And then the *Discoverer Enterprise* was subsequently
09:46:57 assigned to collect oil with the rig collection system; is that
09:47:00 correct?
09:47:00 A. That's correct.
09:47:01 Q. And do you recall the dates on which the
09:47:05 *Discoverer Enterprise* BOP was assigned -- strike that.
09:47:08 Do you recall the dates on which the
09:47:10 *Discoverer Enterprise* was assigned to work the rig collection
09:47:13 system?
09:47:15 A. Somewhere around May 10th. I'm sure you'll tell me.
09:47:19 Q. I believe earlier you mentioned May 10th. I think we saw

one of your notes from your journal, correct?
A. Yes.
Q. And it was some time around that point in time you became aware of the *Discoverer Enterprise* --
A. Yes.
Q. -- being sent to the rig collection, correct?
Now, on May 10th, you agree that the *Discoverer Enterprise* BOP was not ready to be deployed with the BOP-on-BOP option, correct?
A. No.
Q. And on May 10th, there were still outstanding projects that had to be completed before the equipment for the BOP-on-BOP option could have been installed, correct?
A. To the best of my knowledge at that point in time, only the stack had been tested. The only thing left to do was to add -- for work that was described at that time, the only thing left to do was to put the HC collet connector on the bottom and test it.
Q. Now, it's your testimony that the *Discoverer Enterprise* BOP had been tested by May 10th?
A. To the best of my knowledge, yes.
Q. Were you involved at all with the West Audit that was being conducted on the *Discoverer Enterprise*?
A. No.
Q. Did you receive the West Audit report that was conducted

on the *Discoverer Enterprise* BOP?

A. I may have. I don't remember.

Q. And do you recall reviewing the findings that were made from the *Discoverer Enterprise* West Audit as it related to the BOP?

A. I may have. I don't remember.

Q. Do you recall whether the West Engineering Audit of the *Discoverer Enterprise* BOP identified that there were outstanding issues with the *Discoverer Enterprise* BOP as of May 10th?

A. I don't remember.

Q. Now, in your role with the Well Capping Team, you did not have visibility into all the issues associated with deploying and installing the BOP-on-BOP option, correct?

A. Probably not.

Q. And you didn't have insight into all the risks associated with deploying and installing the BOP for the BOP-on-BOP option, correct?

A. I think if we ever got that far, I would have been able to read it, yes.

Q. But you -- at the time of working on the BOP-on-BOP option, you didn't have all the insight into the risks associated with landing and installing the BOP-on-BOP option, correct?

A. No.

09:50:27 Q. And you don't know how long it would have taken to remove
09:50:31 the riser, remove the LMRP, and land the BOP for the BOP-on-BOP
09:50:37 option, correct?
09:50:41 A. I don't know -- no, I don't know how long it would have
09:50:44 taken.
09:50:44 Q. And you don't know at what point the team could have been
09:50:50 in the position to land the *Enterprise* BOP on top of the
09:50:53 *Deepwater Horizon* BOP lower stack, correct?
09:50:57 A. Well, I mean, on the May 10th if all we had to do was to
09:51:01 put the connector on, based on what I know and get it tested,
09:51:08 it should have been ready to go on -- by the 12th.
09:51:10 Q. But you don't actually know exactly how long it would have
09:51:14 taken to have had -- to have landed the *Enterprise* BOP on top
09:51:19 of the *Deepwater Horizon*?
09:51:21 A. No. I wasn't working on that group of pulling the --
09:51:25 pulling the LMRP off.
09:51:26 Q. Now, we've talked earlier that during the response the
09:51:35 Well Capping Team assessed the risks associated with the
09:51:39 BOP-on-BOP option, correct?
09:51:40 A. I take it they did, yes.
09:51:42 Q. And you were not charged with the responsibility of
09:51:45 looking at things that might go wrong during the attaching and
09:51:48 installing of the BOP, correct?
09:51:52 A. Well, I was involved in some of the discussions in which
09:51:55 some of that was discussed, yes.

09:51:57 Q. But you weren't in charge of the responsibility of
09:52:01 assessing those risks?
09:52:02 A. No. I wasn't in charge of the responsibility, no.
09:52:03 Q. Somebody else on the team had that role, correct?
09:52:05 A. That's correct.
09:52:06 Q. And you would agree that that would be an important piece
09:52:08 to the puzzle when making a decision as to whether to use the
09:52:13 BOP-on-BOP or the two-ram stack or the three-ram stack,
09:52:13 correct?
09:52:16 A. It would be something to consider, yes.
09:52:17 Q. Now, you're not aware of who had the responsibility for
09:52:28 looking at all the risks and making a determination as to
09:52:32 whether the benefits and possibly -- and the possibility of
09:52:36 success of the capping option outweighed the risks?
09:52:41 MR. LI: Objection. Beyond the scope, Your Honor.
09:52:47 THE WITNESS: Oh, I would guess --
09:52:48 THE COURT: Wait, wait, one second.
09:52:51 You're not aware who had the responsibility.
09:52:56 Beyond the scope of direct?
09:52:58 MR. LI: Of direct, Your Honor. Mr. Turlak just
09:53:03 testified about --
09:53:04 THE COURT: This is cross-examination. I overrule the
09:53:06 objection.
09:53:07 Can you answer that?
09:53:09 THE WITNESS: Do I know who was making the decisions?

09:53:13 EXAMINATION BY MR. COLLIER:
09:53:13 Q. In assessing the risks.
09:53:14 A. No, I don't know who was doing that.
09:53:15 Q. Now, when you testified about the BOP-on-BOP and the
09:53:22 *Discoverer Enterprise* possibly being ready a few days after
09:53:25 May 10th, you were talking about having the equipment there
09:53:29 that could mechanically shut-in the well, correct?
09:53:31 A. Yes.
09:53:31 Q. Now, I know you've discussed that you're not aware of all
09:53:42 of the risks that were associated with landing the
09:53:48 BOP-on-BOP -- or landing the capping stack, correct?
09:53:50 A. Yes.
09:53:50 Q. But you were aware of some of the risks associated with
09:53:54 the BOP-on-BOP option, correct?
09:53:58 A. Sure.
09:53:59 Q. And were you aware of a peer assist that was conducted for
09:54:03 the capping solutions on May 13th and 14th?
09:54:11 A. Maybe.
09:54:11 Q. And you don't recall any of your Transocean colleagues who
09:54:17 were participating in the peer assist?
09:54:26 A. I don't remember that. That was just another meeting.
09:54:28 Q. Are you familiar with the concept of peer assist?
09:54:34 A. Yes.
09:54:34 Q. And the peer assist process is something that's used by
09:54:38 engineers to test an operation, correct?

09:54:43 A. Yeah. You get people in from other groups that weren't
09:54:46 necessarily dealing with the problem on a day-to-day basis to
09:54:51 look at what was -- what's been presented and to make sure that
09:54:57 everything has been considered.
09:54:57 Q. And you would consider -- well, strike that.
09:55:01 It's a standard practice to consider all the risks
09:55:03 for an operation when you're doing something that is not a
09:55:06 common, everyday situation, correct?
09:55:09 A. The peer -- the peer assist review is common at BP, yes.
09:55:16 Q. And you would agree that the peer assist process is a good
09:55:18 idea when conducting an operation that's not common?
09:55:22 MR. LI: Objection. Beyond the scope, Your Honor.
09:55:24 THE COURT: Beyond the scope. I don't think that's a
09:55:28 proper objection. He's cross-examining your witness. I don't
09:55:33 even understand that objection. Overruled.
09:55:38 THE WITNESS: Yeah, it's a good idea to consider all
09:55:40 the problems, yes.
09:55:41 EXAMINATION BY MR. COLLIER:
09:55:41 Q. You agree that implementing a BOP-on-BOP option was not a
09:55:45 common, everyday situation, correct?
09:55:49 A. No, it's not.
09:55:50 Q. Now, you testified that you weren't -- or don't recall the
09:55:56 peer assist that occurred on May 13, 14, correct?
09:56:00 A. It seems to be vaguely familiar, but I don't remember it.
09:56:03 Q. And probably a stupid question, but you didn't participate

09:56:07 in the peer assist on May 13, 14?
09:56:09 A. Probably not.
09:56:10 Q. Do you recall ever receiving any of the reports that came
09:56:15 out of the peer assist that was conducted on May 13, 14?
09:56:21 A. Not off the top of my head, no.
09:56:23 Q. Let's bring up TREX-142399.
09:56:33 And, Mr. Turlak, do you see that this is an e-mail
09:56:36 from Jim Wellings?
09:56:38 A. Yes.
09:56:38 Q. And it's dated May 14, 2010. Do you see that?
09:56:41 A. Yes.
09:56:42 Q. And if you go into the "To" section of the e-mail, you see
09:56:48 your name, correct?
09:56:49 A. Yes.
09:56:49 Q. And the subject matter is: "BOP-on-BP." I assume that
09:56:54 should be BOP, right?
09:56:55 A. Yes.
09:56:57 Q. So it's "BOP-on-BOP Peer Review - Update on Closeout of
09:57:04 Issues"; is that right?
09:57:04 A. Yes.
09:57:05 Q. And there is an attachment to the e-mail that reads: "Top
09:57:08 Preventer Peer Assist Recommendations Actions."
09:57:12 Do you see that?
09:57:12 A. Yes.
09:57:12 Q. So this would be an indication that you did receive the

report that came out of peer assist that was conducted, correct?

A. Correct.

Q. Now, we can go to Mr. Wellings' cover e-mail and the text, and if we could pull TREX-142399.1.1. And in this e-mail, Mr. Wellings identifies the need for "additional resources" relating to the BOP-on-BOP option.

Do you see that?

A. Yes.

Q. And do you recall this request being made at this time of May 15th?

A. It looks familiar, yes.

Q. And the first additional resource that Mr. Wellings identifies is a "hydrate expert to help work hydrate mitigation plan," correct?

A. Yes.

Q. And he also, on the third line, identifies, "*DD II* Rig Team Members for procedures and reviews," correct?

A. Yep.

Q. And so at this point in time there was still work being done with respect to developing procedures for the BOP-on-BOP option, correct?

A. Yes.

Q. Now, one risk that we've talked about before and that came up in the peer assist was the risk of hydrate formation when

09:58:40 landing the BOP-on-BOP?
09:58:41 A. Yes.
09:58:42 Q. And if we can go to the slide -- or the slide deck that's
09:58:48 attached to Mr. Wellings' e-mail, if we can go to
09:58:57 TREX-142399N.5. And do you see that this is a slide from the
09:59:00 presentation that Mr. Wellings had forwarded on to you,
09:59:06 correct?
09:59:06 A. Uh-huh.
09:59:06 Q. Sorry?
09:59:07 A. Yes.
09:59:07 Q. And the heading is, "Preparation for BOP-on-BOP"; is that
09:59:10 right?
09:59:10 A. Yes.
09:59:11 Q. And if we can go down to the very bottom bullet point
09:59:17 there, and this is TREX-142399N.5.1.
09:59:24 Mr. Turlak, do you see there that he identifies that
09:59:28 there needs to be a review for "inhibition system to confirm
09:59:33 adequacy and build in additions if needed, need hydrate expert
09:59:37 and lessons learned from *Enterprise* and Top Hat"?
09:59:41 Do you see that?
09:59:41 A. Yes, sir.
09:59:42 Q. And so you would agree at this point in time that the
09:59:43 hydrate mitigation was in the planning stages, correct?
09:59:48 A. Well, it's in the planning stages after this because it
09:59:52 says "review inhibition system." So, you know, I thought we

had already talked about hydrate mitigation during the *Enterprise* BOP, but it seemed like something -- something pretty simple at the time for pumping glycol down one of the lines that communicates with the BOP stack. So I guess BP's -- the team felt like they needed to -- the peer assist team felt like they needed to review it, yes.

Q. You would agree at this point in time the hydrate mitigation issue had not been finalized, correct?

A. Hadn't been finalized, that's correct.

Q. And did you work at all on the hydrate mitigation issue?

A. I didn't see it as a big deal. Because just the way we did it for the -- for the capping stack was to pump it down one of the outlets and push it into the main wellbore. We could have done it the same way here.

Q. And you may have misunderstood my question, Mr. Turlak.

My question now is: You didn't actually work on the team that was involved with mitigating the risk of hydrate formation?

A. No, I did not.

Q. And you're not aware of any engineering analyses or risk mitigations that that team was conducting relating to hydrate mitigation, correct?

A. That's correct.

Q. And so you don't know when the team that was working on the hydrate mitigation issue actually completed their work,

10:01:34 correct?
10:01:36 A. No.
10:01:36 Q. Now, we've discussed that the BOP-on-BOP option worked
10:01:49 towards removing the LMRP, correct?
10:01:50 A. Yes.
10:01:50 Q. It was not a part of your responsibility during the
10:01:57 response effort to consider the risk of removing the LMRP,
10:01:57 correct?
10:02:01 A. I think it was discussed in the Well Cap Team meetings.
10:02:05 Q. But it was not your responsibility, though, to assess the
10:02:10 risks and develop the procedures associated with removal of the
10:02:14 LMRP?
10:02:14 A. No.
10:02:15 Q. That was another team that was working on that issue?
10:02:18 A. I thought it was coming out of the Well Cap Team, that
10:02:21 they were working on the procedure on how to get it done.
10:02:24 Q. But you, yourself, didn't actually work as part of that
10:02:27 team?
10:02:27 A. No.
10:02:27 Q. Now, if we can return to the May 13, 14, Peer Assist
10:02:37 report that you received. If we can go to TREX-1423999N.9.
10:02:47 Do you see the title there is "Pull LMRP"? Do you
10:02:50 see that?
10:02:50 A. Yes, sir.
10:02:50 Q. Again, this is a slide that came out of the Peer Assist

Review that was conducted May 13, 14, correct?
A. Yes, sir.
Q. This is identifying issues and concerns relating to removal of the LMRP, correct?
A. Well, I think it's a process. I don't know -- I guess, if there are concerns, they would be put here, but I think it's the process of how it gets done.
Q. Now, if we can go down to the bottom bullet point on this slide. It's the one that reads, "ROV Ring Removal in Plume." Do you see that, Mr. Turlak?
A. Yes, sir.
Q. The consideration from the Peer Assist Team is that there was a concern about the gasket ring that was in the lower BOP stack, correct?
A. Yeah, it's talking about some kind of a ring. I thought it was some sort of a ring that was used for dispersant, but I don't know what that means there, ROV ring.
Q. Do you recall the Well Capping Team working on a solution to address concerns associated with removal of the gasket ring when removing the LMRP?
A. No.
Q. That wasn't something that you worked on was developing the tooling that was necessary to assure that the gasket ring would be removed with the LMRP?
A. No.

10:04:41 Q. You're not aware of the risks that were associated with
10:04:44 that mission?
10:04:46 A. No. I thought that Oceaneering was involved because it
10:04:52 was their ROV's -- or they had some ROV's there, and that's
10:04:56 usually their remit (spelled phonetically) to design tools for
10:05:02 that.
10:05:02 Q. Now, you're not aware of when the tooling was developed to
10:05:09 address this issue of removal of the gasket ring, correct?
10:05:13 A. No.
10:05:20 Q. Now, if we could go to TREX-142399N.10.1. This, again, is
10:05:32 a slide from the same May 13, 14 Peer Assist presentation; is
10:05:38 that correct, Mr. Turlak?
10:05:41 A. I guess.
10:05:42 Q. The heading on that title is, "Install BOP." Do you see
10:05:45 that?
10:05:45 A. Yes.
10:05:45 Q. On this slide -- actually, if we can pull out to
10:05:51 TREX-142399N.10.
10:05:56 Would you agree that these are other considerations
10:05:58 that the Peer Assist Team identified with respect to installing
10:06:01 the BOP at this time?
10:06:02 A. Which ones? All of these?
10:06:06 Q. Correct.
10:06:39 A. Looks like they were considerations, but most of them have
10:06:43 already been answered.

10:06:43 Q. Well, let me draw your attention to the one that's fourth
10:06:46 from the bottom.
10:06:48 A. Okay.
10:06:48 Q. If you can bring up 142399N.10.1. That reads, "Guidance
10:06:55 system such that BOP is positively in place before landing
10:06:57 assuming loss of visibility, including ROV operators and
10:07:02 considering how *Horizon* stack could be utilized." Do you see
10:07:07 that?
10:07:07 A. Uh-huh (affirmative response).
10:07:07 Q. You understand that at this point in time the Peer Assist
10:07:11 Team is identifying the need for a guidance system to land the
10:07:16 BOP, correct?
10:07:17 A. It looks like it.
10:07:18 Q. You understand, based on your role with the Well Capping
10:07:21 Team, that a guide frame was manufactured and developed by
10:07:25 Wild Well Control for landing the BOP?
10:07:27 A. Yes.
10:07:28 Q. You understand that that work continued through the end of
10:07:32 May?
10:07:34 A. I don't remember exactly the time, but I don't -- I don't
10:07:37 know how something that weighs 40,000 pounds is going to guide
10:07:41 something that weighs 700,000 pounds.
10:07:43 Q. You agree that that was a work stream that Wild Well
10:07:47 Control was working out, correct?
10:07:48 A. That's correct.

10:07:49 Q. If we can bring up TREX-144952.2.1. Oh, I'm sorry, let me
10:07:57 rephrase that. If you can bring up TREX-144952.2.2.
10:08:06 This is dated May 18th. Do you see that, Mr. Turlak?
10:08:09 A. Yes.
10:08:09 Q. It's an e-mail from Iain Snedden to you and Asbjorn Olsen,
10:08:17 correct?
10:08:17 A. Yes.
10:08:18 Q. Mr. Snedden and Mr. Olsen are both Transocean employees,
10:08:22 correct?
10:08:22 A. Correct.
10:08:22 Q. The subject is, "Request For Information, Wild Well
10:08:25 Control"?
10:08:25 A. Yes.
10:08:26 Q. Mr. Snedden's e-mail to you says, "Any info on the *DD II*
10:08:31 BOP frame yesterday? Needing to push info to Wild Well Control
10:08:35 to get their designer working."
10:08:37 Do you see that?
10:08:37 A. Yes.
10:08:37 Q. So at this point in time, May 18th, Wild Well Control was
10:08:42 just beginning to design the guide frame, correct?
10:08:44 A. I guess.
10:08:45 Q. If we then go to TREX-144952.2.1, this is your response to
10:08:52 Mr. Snedden; is that correct?
10:08:54 A. Yes.
10:08:54 Q. Your response is, "Working on it. I know it's important."

10:08:57 Correct?
10:08:57 A. Yes.
10:08:58 Q. Now, we discussed earlier the venting options or venting
10:09:17 issues with respect to the BOP-on-BOP option, correct?
10:09:20 A. Yes.
10:09:20 Q. Now, there was no venting option that was developed for
10:09:26 the *Discoverer Enterprise* by the Well Capping Team, correct?
10:09:32 A. It wasn't even discussed, that's correct.
10:09:33 Q. The venting option came into play after the *Discoverer*
10:09:38 *Enterprise* went to rig collection, correct?
10:09:40 A. Yes.
10:09:40 Q. You understand that the venting option was designed to
10:09:49 vent pressure, if necessary, so that the well did not have to
10:09:53 be shut in completely, correct?
10:09:55 A. That's what I was told, yes.
10:09:56 Q. The advantage of having this venting option was the
10:10:00 ability to prevent pressure in the well from getting too high,
10:10:00 correct?
10:10:04 A. Could be, yes, sir.
10:10:05 Q. Now, we've talked before that the Well Capping Team had
10:10:10 engineers with subsea experience from Transocean, Wild Well
10:10:14 Control and Cameron, correct?
10:10:16 A. Yes.
10:10:16 Q. At any point in time before May 15th, when the venting
10:10:21 option came about, did anyone from Transocean, Wild Well

10:10:25 Control, or Cameron indicate that a venting option should be
10:10:30 added to the BOP-on-BOP solution?
10:10:35 A. Well, I think at that point in time, and I may be a few
10:10:40 days off, but we didn't really realize that we couldn't shut it
10:10:45 in. So because our initial intent was is we had a system that
10:10:51 was fully functional, fully pressure worthy, and that we could
10:10:58 put something over the top of the *Horizon* BOP stack and
10:11:02 completely shut it in.
10:11:02 Q. Would you agree that as more information became known
10:11:05 about the blowout, that the Well Capping Team had to revise
10:11:09 their designs and change the design of the capping solution?
10:11:14 A. I guess that's where it came from. They said that
10:11:19 downhole we can't take it, can't take the pressure, so you guys
10:11:23 got to do something about being able to vent it off.
10:11:26 Q. Now, the two-ram capping stack, that morphed into the
10:11:37 three-ram capping stack, correct?
10:11:38 A. Yes, sir.
10:11:38 Q. At any time was a two-ram capping stack developed with a
10:11:42 venting option?
10:11:43 A. I don't know that it really got far enough. It was going
10:11:46 to have at least one side outlet valve, maybe it was two, I
10:11:52 don't remember, but it really hadn't gotten far enough.
10:11:58 Q. So your recollection is that the two-ram capping stack was
10:12:02 never designed by the Well Capping Team to have a venting
10:12:07 option?

10:12:08 A. I don't think so.
10:12:08 Q. Now, once the Well Capping Team identified the need for a
10:12:15 venting option, do you agree that the Well Capping Team worked
10:12:17 on this throughout the month of May, correct?
10:12:24 A. No. We didn't even know anything about it until the
10:12:29 middle of May, so --
10:12:29 Q. Maybe I asked a poor question, Mr. Turlak. Let me
10:12:34 rephrase the question. You would agree that once the Well
10:12:36 Capping Team knew about the venting option, that the work on
10:12:38 the venting option continued throughout the -- through to the
10:12:41 end of May?
10:12:45 A. It's reasonable.
10:12:48 Q. Now, during your direct examination, you discussed Gantt
10:13:17 charts that you received, correct?
10:13:20 A. That's what I remember it as is a Gantt chart, yes, a time
10:13:24 chart.
10:13:24 Q. Gantt chart is just more or less a timeline for when
10:13:28 things would be completed if everything stays on track?
10:13:31 A. Yes, sir.
10:13:31 Q. It's a scheduling tool?
10:13:33 A. Correct.
10:13:33 Q. That's something that was used by the Well Capping Team to
10:13:36 track the progress with respect to the capping solutions,
10:13:36 correct?
10:13:39 A. Actually, that was used -- the Capping Team had their

10:13:44 chart, and we had charts of our own within Transocean, because
10:13:49 there was -- we had -- we -- our chart, our timelines were a
10:13:55 little bit more specific in identifying individual details, as
10:14:00 opposed to maybe some of the Well Capping Team's charts.
10:14:04 Q. Is it correct that you received the Well Capping --
10:14:08 A. Yes, I did.
10:14:08 Q. You received the Well Capping Team Gantt charts, correct?
10:14:12 A. Yes.
10:14:13 Q. If we can go to TREX-11261N.2, please.
10:14:19 Does this look like -- just generally, without
10:14:22 getting into the specifics -- kind of what the Gantt charts
10:14:25 looked like that you had received?
10:14:26 A. Yes.
10:14:26 Q. The top there, this reads, "Containment BOP-on-BOP
10:14:34 Level 1," do you see that?
10:14:34 A. Yes.
10:14:35 Q. Is this an indication that this is one of the Gantt charts
10:14:38 that was created for the Well Capping Team relating to the
10:14:43 BOP-on-BOP option?
10:14:45 A. Looks to be.
10:14:46 Q. If you can look up in the upper right-hand corner, it
10:14:49 reads, "Draft for Review, 29th of May," do you see that?
10:14:52 A. Yes.
10:14:52 Q. This would be an indication that this was a Gantt chart
10:14:54 from the 29th of May; is that correct?

10:14:55 A. Yes.
10:14:58 Q. If we can go to one of the call-outs from here, which is
10:15:07 TREX-11261N.2.2.
10:15:12 Do you see the title there reads,
10:15:14 "Manufacturer of Manifold Vent Assembly," do you see that?
10:15:19 A. Yes.
10:15:19 Q. Here, it has the transporting of the manifold vent
10:15:25 assembly on June 2nd. Do you see that?
10:15:28 A. Yes.
10:15:28 Q. Is that consistent with your recollection as to -- at
10:15:33 least at this point in time, May 29th, as to the status of the
10:15:37 venting manifold?
10:15:38 A. Well, it's a little bit different from the e-mail that I
10:15:41 saw to Jim Wellings that said that it would actually be
10:15:46 completed on the 28th.
10:15:47 Q. So this would be a longer timeline than what we discussed
10:15:50 earlier today for the venting manifold?
10:15:52 A. Yeah, I guess it took them longer to finalize the design.
10:15:58 Q. If we can go down further a little bit. If we can go to
10:16:06 bottom him -- actually, before we go there, can we go back
10:16:09 to -- I'm sorry. The one that says, "Install."
10:16:21 If you can see here, it says, "Install manifold vent
10:16:26 assembly," and it has a date of June 4th. Do you see that,
10:16:29 Mr. Turlak?
10:16:31 A. Yes.

10:16:31 Q. So this was an updated Gantt chart from the one that you
10:16:34 testified about earlier on direct, correct?
10:16:35 A. If it was from the 29th, yeah, because it was supposed to
10:16:41 be finished already on the 28th.
10:16:42 Q. Now, if we can go to the bottom of the same Gantt chart,
10:16:48 please.
10:16:52 This has the title, "Install *DD II* BOP to *Horizon* BOP
10:16:56 stack." Do you see that, Mr. Turlak?
10:16:58 A. Yes.
10:16:58 Q. If you go to the very bottom line there, it says, "Vent
10:17:07 shut-in wellhead pressure as required." Do you see that?
10:17:10 A. Yes.
10:17:10 Q. That would be an indication that you've actually latched
10:17:13 the BOP, and that you are conducting some type of pressure
10:17:17 testing at that point, correct? Or that you're actually
10:17:17 venting the pressure, correct?
10:17:17 THE REPORTER: I'm sorry, I couldn't hear that last
10:17:17 part.
10:17:17 EXAMINATION BY MR. COLLIER:
10:17:25 Q. Let me restate the question. That line would be an
10:17:27 indication that you've actually latched the BOP at that point
10:17:29 in time, correct?
10:17:32 A. Sure. Because the line above says, "Land BOP stack on
10:17:36 *Horizon*." Yeah, it's, "Vent shut-in wellhead pressure as
10:17:45 required."

10:17:45 Q. As of this date, it's identifying the *DD II* would be
10:17:48 landed on June 6th, correct?
10:17:49 A. Yes. Yes.
10:17:51 Q. Now, you understand that there was never any finalized
10:17:58 procedures for the BOP-on-BOP option, correct?
10:18:01 A. Yes.
10:18:01 Q. So the Unified Command never approved any procedures for
10:18:06 the BOP-on-BOP option, correct?
10:18:11 A. That's right. I think the next day he decided not to
10:18:15 go -- not to even do it, so never got the chance.
10:18:18 Q. So there never was any approval to finalize procedures for
10:18:23 the BOP-on-BOP option?
10:18:25 A. No.
10:18:25 Q. Now, with respect to the *DD II* BOP, are you aware of an
10:18:35 inspection that West was doing with respect to the BOP?
10:18:40 A. Yes, sir.
10:18:40 Q. You're aware that that inspection was ongoing at the end
10:18:47 of May and into June, correct?
10:18:54 A. It was ongoing toward the end of May. I think the
10:18:58 final -- one of the final things that they were doing was the
10:19:04 Deadman autoshear was fixed by the 27th, and reported as fixed
10:19:11 on the 28th. So that was the major thing, yes.
10:19:15 Q. You received the West Engineering report that was
10:19:19 conducted for the *DD II* BOP?
10:19:22 A. I've seen it. I don't know that -- well, I've seen it,

10:19:25 yes.
10:19:26 Q. So if we can go to TREX-141081. Actually, if we can go to
10:19:50 the next page.
10:19:54 Do you recognize this as the West Engineering report,
10:19:59 Mr. Turlak?
10:19:59 A. Yes, sir.
10:19:59 Q. This is the West Engineering report that was done on the
10:20:05 *DD II*; is that correct?
10:20:06 A. Yes.
10:20:07 Q. You're aware that there were attachments to the report
10:20:21 that provided daily reports from West, correct?
10:20:24 A. Yes. I've never seen this one before, though, from the
10:20:27 12th of July. No.
10:20:28 Q. Did you receive the daily reports that West was conducting
10:20:32 on the *DD II* BOP?
10:20:34 A. Actually, at the time, what I got was things that they had
10:20:37 had problems with, not necessarily the reports themselves on a
10:20:45 daily basis.
10:20:45 Q. You recall that there were issues that needed to be
10:20:48 resolved with the *DD II* BOP, correct?
10:20:50 A. Sure. There was shuttle valves, some problems, and some
10:20:56 problems with some cards on the SEM's. There was the problem
10:21:03 of the pilot-operated check valve in plumbing for the Deadman,
10:21:09 yes.
10:21:09 Q. Do you recall that the *DD II* Deadman and autoshear failed

testing at this time, correct?
A. In July?
Q. Well, in May --
A. Yes.
Q. -- correct?
A. Yes. I think they tried to test it at the end of May, the 24th or the 25th. I think on the 27th is when it was tested and successfully.
Q. If we can go to TREX-141081.5.1. You can see there, Mr. Turlak, it identifies the date of assessment by West for the *DD II* BOP was from 14th of May to the 10th of June. Do you see that?
A. Yeah, they are hard to get off the rig.
Q. You would agree that you would want West to complete their inspection and audit before you would use the *DD II* BOP for the BOP option, correct?
A. Well, I would -- yes. They did -- BP did have the -- have West out there to do the -- to do the review, yes.
Q. MMS was also out on the rig, correct?
A. Yes.
Q. They were watching all the testing and repairs that were being made on the *DD II*, correct?
A. Yeah, but to the best of my memory, all of the repairs were completed. This is just a time period that West was out there. I thought all the repairs were done much prior to the

10th of June.

Q. If we can go to the entry for the daily report for June 5th, 2010. This is TREX-141081.150.2.

You see that this is an entry by West of June 5th, correct?

A. Yes.

Q. This is the same *DD II* report we have been talking about, correct?

A. Yes.

Q. If we can go down to the fifth bullet point that's in this daily report. It reads, "A successful Deadman test was successfully performed as per Transocean rig specific procedure. The ROV's deployed observed the system operating as expected with the casing shear rams closing first, followed some 15 seconds later by the lower blind shear rams."

Did I read that correctly?

A. Yes.

Q. So at this point in time, June 5th, there's been a subsea Deadman test of the system that had failed earlier, correct?

A. Yes.

Q. So as of June 5th, that particular issue had been fixed; is that right?

A. Yeah, it had been fixed way before then. I think what the problem was is they had run the -- run the BOP stack down at the bottom. There was a solenoid valve that didn't fire

correctly in order to close the casing shear rams, so they had to pull the stack back up to fix it.

So prior to deployment, you had to do another Deadman test. So I think this is the second Deadman test.

Q. So this was a test to confirm that the Deadman was working; is that right?

A. Operational, yes, sir.

Q. If we can go, then, to the next three bullet points. This would be TREX-141081.150.4.

This, again, is an entry on June 4th from West reports. The first bullet point reads, "The shear rams and casing rams were then function tested from both pods and all SEM. It was found that the casing shear rams would not close on the blue pod on either SEM. The diagnostic system in the pods revealed that the casing shear ram close solenoid number 35 was drawing no current in the Blue Pod, indicating that the close solenoid in the pod had failed. The BOP was prepared for pulling to repair the problem identified."

Did I read that correctly?

A. Yes.

Q. So on this day, June 5th, after the Deadman test had been -- I'm sorry, the Deadman had been tested, there was another problem found with the *DD II* BOP, correct?

A. That's the one I just told you about.

Q. So the *DD II* BOP had been pulled on June 5th to repair

that problem, correct?
A. Yes.
Q. So do you know how long it took to repair that particular problem on the *DD II* BOP?
A. Well, if West was out there until the 10th, I would say the 10th. But, realistically, if you ran BOP-on-BOP, you really don't need the casing shear rams.
Q. Well, you wouldn't want to run a BOP that was not fully functioning with a BOP-on-BOP option?
A. Yeah, but it was fully functional when we ran it. It was on subsea that they found that it -- that the casing shear ram was not operational.
Q. Right. The Team, the *DD II* Team identified this issue was sufficient that they wanted to pull the BOP and repair the problem, correct?
A. Well, sure. They were going to drill a live well, and they were going to possibly need their casing shear rams in the event of a well control situation.

My point was that if you were running BOP-on-BOP, this problem really wouldn't be a problem because you wouldn't need your casing shear rams.

Q. In your opinion, was the -- well, strike that.

Do you know if MMS identified this as an issue that they wanted to have fixed before the BOP was run?
A. For drilling the relief well?

Q. Correct.
A. Well, sure. We would not want to run it, put it on a live well if the casing shear rams weren't working.
My point was just, if we were -- just to put a spotlight on this, this particular incident, if we had run BOP-on-BOP, we got it down to the -- and landed it on the BOP stack, and we found our casing shear rams didn't work, so what.
Q. At the time that the *DD II* BOP was being considered with the BOP-on-BOP option, it was not known to the team that there was an issue with the casing shear rams, correct?
A. Well, I don't know. They had tested it. Something didn't sound right to me through all of this, in reading this stuff when it happened, was that how can you verify that the system works in one regard, and you go and you test it from the pods and it still works, and get down to the ocean floor and it doesn't work, and it's known right away what the problem is? So something didn't -- didn't sit right with me.
Q. But you'd agree on June 5th that this particular issue with the *DD II* BOP and the casing shear rams had been identified?
A. That's correct, yes.
Q. Now, switching topics briefly, we discussed the capping stack, correct?
A. Yes.
Q. Transocean has drilled offshore wells for many different

10:28:36 oil companies, correct?
10:28:37 A. Yes.
10:28:38 Q. Many different oil companies even before 2010, right?
10:28:43 A. Sure.
10:28:43 Q. Does Transocean continue to drill offshore wells for BP at
10:28:51 this time?
10:28:51 A. Yes.
10:28:53 Q. Now, the other companies that Transocean has drilled
10:28:58 offshore wells for includes Shell, Chevron, E&I, Anadarko, BHP,
10:28:58 correct?
10:29:06 A. Yes.
10:29:06 Q. You're not aware of any company, including the oil
10:29:11 companies that we just discussed, had a capping stack assembled
10:29:16 and available for deepwater capping prior to April 20th,
10:29:16 correct?
10:29:19 A. I'm not aware of it.
10:29:20 Q. Prior to April 20th, are you aware of anyone from
10:29:26 Transocean ever coming to you to ask about a capping stack?
10:29:33 A. No, I guess they didn't need to because we had a whole
10:29:36 bunch of BOP stacks.
10:29:39 Q. Now, the two-ram capping stack that we talked about
10:29:44 before, would you say that the two-ram capping stack barely got
10:29:48 off the ground?
10:29:50 A. Before we decided to go to a three-ram?
10:29:54 Q. Correct.

10:29:54 A. It was pretty quick. It went from -- probably before we
10:29:59 got the two-ram BOP back from Hydril fully serviced with new
10:30:09 shear rams installed, that it was decided that we were going to
10:30:16 go to three.
10:30:16 Q. You had no objection to the change from a two-ram to a
10:30:21 three-ram capping stack?
10:30:23 A. No. I mean, there was -- an addition of redundancy is
10:30:27 probably the right thing to do.
10:30:32 Q. Now, you're aware that the three-ram capping stack that
10:30:42 was installed on July 12th attached to the top of the flex
10:30:45 joint, correct?
10:30:45 A. Yes, sir.
10:30:46 Q. You're aware that there was a transition spool that was
10:30:50 developed and manufactured to attach the three-ram
10:30:54 capping stack to the flex joint?
10:30:55 A. Yes, sir.
10:30:56 Q. You weren't part of the team involved with developing that
10:31:01 connection system of the three-ram capping stack to the flex
10:31:05 joint flange?
10:31:05 A. No, I would have been done a lot quicker.
10:31:07 Q. But you weren't involved in the operation they were
10:31:09 running, correct?
10:31:12 A. I got called to approve shortening that spool sometimes
10:31:19 around the first part of May, when they were doing some
10:31:25 welding, and they welded on the wrong -- the Class G -- G class

10:31:32 flange -- I'm sorry, the H class flange, HMFH flange onto the
10:31:38 casing. They said, that's the wrong flange. We need to cut it
10:31:42 off and weld something -- weld the G class flange on there. Is
10:31:48 it okay if we shorten it?
10:31:52 Then they told me -- I asked, how long is it going to
10:31:55 be? Somewhere between 60 and 75 inches tall. I said, anything
10:32:00 over forty-something inches is fine. That was on a Friday
10:32:04 night, early part of May.
10:32:07 Q. That was the extent of your involvement with respect to
10:32:10 connecting the capping stack to the flex joint flange?
10:32:14 A. Yeah. Until we had to wait on it, you know, when we had
10:32:17 the capping stack finished and us having to wait on it.
10:32:20 Q. You didn't work on the details of the transition spool,
10:32:23 the device that was developed and manufactured to attach the
10:32:27 three-ram capping stack to the flex joint?
10:32:29 A. Oh, I got sent that information on, you know, the 5th or
10:32:34 the 6th of May. I looked at it and said, it looks reasonable.
10:32:38 Q. Did you reinvolve with the SIT testing that was conducted
10:32:42 for the transition spool?
10:32:44 A. Do you mean with the capping stack?
10:32:46 Q. Correct.
10:32:50 A. I had conversed with Cameron about doing it, yes.
10:32:53 Q. Were you involved in any of the engineering analyses that
10:32:59 were performed to establish the testing that was performed for
10:33:02 the transition spool?

10:33:07 A. I didn't know there was that much analysis to it.
10:33:09 Q. You weren't involved in any of the hazards or risk
10:33:15 assessments for the transition spool for connecting the capping
10:33:18 stack to the flex joint flange?
10:33:34 A. No, sir.
10:33:53 Q. Now, you understand that after the rig sank, the flex
10:33:57 joint flange on which the capping stack was attached was at an
10:34:01 angle, correct?
10:34:02 A. Yeah, the riser, the riser was holding it over at an
10:34:06 angle, yes.
10:34:06 Q. Right. You understand that when they cut the riser, the
10:34:08 flex joint didn't actually come back to straight, correct?
10:34:11 A. Yes.
10:34:12 Q. You understand that they had to straighten out the flex
10:34:18 joint before they could attach the capping stack, correct?
10:34:22 A. You mean jack it to center?
10:34:24 Q. Correct.
10:34:24 A. Yes.
10:34:25 Q. You understand that they had to develop tooling and
10:34:29 perform tests in order to be able to straighten the flex joint,
10:34:29 correct?
10:34:32 A. Yes.
10:34:44 MR. COLLIER: Thank you, Mr. Turlak. I have no further
10:34:48 questions.
10:34:49 THE WITNESS: Thank you.

10:34:49 MR. LI: Your Honor, I only have a few questions.

10:34:52 THE COURT: Let's go. Come on, let's finish up this

10:34:54 witness and take a break after.

10:34:57 REDIRECT EXAMINATION BY MR. LI:

10:34:58 Q. Mr. Turlak, we had a lot of discussion just now about

10:35:00 casing shear rams on the *DD II*. What rams were used to shut in

10:35:03 the well on the capping stack?

10:35:04 A. The blind shear rams.

10:35:06 Q. Was that the plan is to use the blind shear rams to shut

10:35:09 it?

10:35:10 A. Yes, sir.

10:35:10 Q. Now, we talked a little bit about a transition spool. You

10:35:14 told this Court that you would have got it done a lot quicker.

10:35:18 Why did you say that?

10:35:19 A. Well, I'm probably a little bit more used to dealing with

10:35:24 fabrication and manufacturing because of my time at

10:35:30 manufacturers to do something like that.

10:35:31 Where BP had used casing that was -- well, pipe that

10:35:39 was rolled and welded with a seam weld, I wouldn't have done

10:35:43 that. I would have tried to use a forging and just go to a

10:35:48 yard and try to identify some material that I knew I had the

10:35:53 material certifications for and could probably do that.

10:36:00 You know, I worked well with Cameron during the

10:36:04 capping stack building phase. Probably could have went over

10:36:08 there and described exactly what I needed, and they might have

found it, or we might have had to buy something that was in their customer inventory that shouldn't have been a problem.

Instead of using a seam weld -- seam pipe, I would have used a forged piece of material and welded the two flanges on it.

Now, I don't know of all the details. I would have just had it welded together, stress relief, pressure tested. The part that would have lowered -- would have, I guess, maximized the pressure rating would have been the riser flange.

Q. Now, Mr. Turlak, thank you for the detail. How many days are we talking about to do that?

MR. COLLIER: Objection, Your Honor, calls for speculation.

THE COURT: Overruled.

THE WITNESS: Based on, you know, what I know about manufacturing and fabrication, if I had all the parts there -- if I didn't have the 18 and three-quarter 15 flange, we could have had that made in one week. Without having the stainless inlay in the ring grove, two weeks for that. But after I had all the parts, three, four days. So let's say a maximum of two and a half weeks.

EXAMINATION BY MR. LI:

Q. Not two and a half months?

A. No, sir.

Q. Now, when did you first see schematics for the transition

10:37:33 spool?
10:37:33 A. I think, as I said earlier, I think it was May 6th.
10:37:36 Q. May 6th?
10:37:38 A. I think that's the date on it.
10:37:39 Q. So from May 6th, you would have been able to put it
10:37:42 together in about two weeks?
10:37:44 A. Yeah, two, two and a half weeks.
10:37:45 Q. All right. You saw some discussion -- or we heard some
10:37:49 discussion today about the Peer Assist. If we could have
10:37:53 TREX-142399.3 up.
10:38:10 This is one of the pages here. There we go. This is
10:38:14 the overall feedback page. This was not shown to you by
10:38:20 counsel.
10:38:20 If we could just pull this review -- just highlight
10:38:27 the part he pulled up.
10:38:32 Mr. Turlak, this is the Peer Assist from all those
10:38:38 folks that counsel told us about. They were evaluating the
10:38:40 BOP-on-BOP option. If you could just read for the Court what
10:38:42 the overall feedback was.
10:38:44 A. Key risks have all been identified, no significant
10:38:48 additional risks identified by Review Team. The Review Team
10:38:51 believes the operation is feasible and can be managed safely.
10:38:54 Q. And this was approximately May 13, 14, correct?
10:38:59 A. Yeah, I guess that's --
10:39:02 MR. LI: No further questions, Your Honor.

10:39:03 THE COURT: All right. Thank you, sir.

10:39:06 Let's take about a 15-minute recess.

10:39:09 THE DEPUTY CLERK: All rise.

10:43:06 (WHEREUPON, at 10:43 a.m., the Court took a recess.)

10:59:24 THE DEPUTY CLERK: All rise.

10:59:32 THE COURT: Please be seated.

10:59:38 MR. LI: Your Honor, Luis Li on behalf of Transocean and the aligned parties. I misspoke on an exhibit, and I just want to correct it for the record. I said it was TREX-114985.1.1, and I meant to say 144985.1.1.

10:59:57 THE COURT: What was that exhibit?

10:59:59 MR. LI: I'm not sure, Your Honor. I transposed an exhibit number.

10:59:59 THE COURT: All right. We'll figure it out. Thank you.

11:00:14 MR. LI: Mr. Turlak, with consent of opposing counsel, would like to watch the rest of the trial.

11:00:18 THE COURT: Anybody object to that?

11:00:20 MR BROCK: I do not. But that's with the understanding he will not be called.

11:00:24 THE COURT: He's not going to be called back?

11:00:24 MR. LI: No, Your Honor.

11:00:24 THE COURT: Okay. Very well.

11:00:25 MR BRIAN: Your Honor, Brad Brian for Transocean and the aligned parties. Before calling our next live witness, we

would like to play now the video clips for Mr. Richard Vargo, who is a Halliburton employee involved in the Top Kill effort, and David McWhorter, who is a Cameron vice-president, who provided assistance related to capping the well. The total length, I'm told, is 10 minutes and 33 seconds.

THE COURT: All right. Very well.

(WHEREUPON, at this point in the proceedings, a video clip of the deposition of RICHARD VARGO was played.)

(WHEREUPON, at this point in the proceedings, a video clip of the deposition of DAVID McWHORTER was played.)

THE COURT: Is that the end of it?

MR. LI: It is, Your Honor.

THE COURT: Okay.

MS. GREENWALD: The aligned parties call Dr. Bea, Your Honor.

THE COURT: All right.

THE DEPUTY CLERK: Would you please raise your right hand. Do you solemnly swear that the testimony which you are about to give will be the truth, the whole truth and nothing but the truth, so help you God?

THE WITNESS: I do.

ROBERT BEA

was called as a witness and, after being first duly sworn by the Clerk, was examined and testified on his oath as follows:

THE DEPUTY CLERK: Please state and spell your name for

the record.

11:10:52 THE WITNESS: My name is Robert Glenn Bea, R-O-B-E-R-T, G-L-E-N-N, B-E-A.

11:11:05 MR. BROCK: Your Honor, I'm sorry.

11:11:08 THE COURT: Go ahead.

11:11:09 MR. BROCK: Mike Brock for BP. We do have a *Daubert* motion pending with regard to Dr. Bea that addresses one of his opinions and the methodology that he used with that opinion, as well as a motion asking that we not replow Phase One ground. There is a lot of material in his report that goes to the Phase One issues.

11:11:33 THE COURT: Right. I've looked at the motion. I read over his report. And, first of all, it looks like some of it -- some of the report language was redacted, I assume, following the pretrial conference?

11:11:49 MS. GREENWALD: Correct, Your Honor.

11:11:51 THE COURT: So we addressed that issue.

11:11:54 It does seem like there is a good bit in his report that seems to sort of rehash testimony or issues from Phase One.

11:12:06 MS. GREENWALD: Your Honor, if I may respond. If I at any point get into anything in Phase One, I will happily stop.

11:12:14 Dr. Bea and I have very carefully crafted this not to touch Phase One at all. This really deals with the bottom axis of process safety management. Phase One was the

Y axis, and we're talking only about the X axis in this testimony today.

And with respect to the methodology, that is methodology set out in his report at pages 9 through 12. And it's certainly fertile ground for cross-examination if it goes to weight, but he certainly has the methodology in his report.

THE COURT: I'm going to deny the motion, except to the extent it's stated, otherwise deny the *Daubert* motion, with the understanding, of course, that there certainly may be areas of questions that BP may object to, and I will rule on those as they occur. Okay?

MR. BROCK: Yes, sir.

THE COURT: Go ahead.

MS. GREENWALD: Thank you, Your Honor. Robin Greenwald for the plaintiffs and the aligned parties.

VOIR DIRE EXAMINATION BY MS. GREENWALD:

Q. Dr. Bea, is your area of expertise management of catastrophic risk?

A. Yes, ma'am.

Q. And is that the expertise for which you gave testimony in Phase One of this trial?

A. Yes.

Q. Have your qualifications changed in any significant way since you gave your Phase One testimony?

A. No.

Q. And did you prepare an expert report containing your opinions in Phase Two of this case?
A. Yes.
Q. Did you also prepare a rebuttal Phase Two report?
A. Yes.
Q. Now, do these reports contain your opinions based on the evidence in this case and the materials cited in your report?
A. Yes.

MS. GREENWALD: Okay. Your Honor, at this time I would like to tender Dr. Bea as an expert in management of catastrophic risks with the confines that I mentioned just a moment ago, and I would like to move into evidence TREX-11750R and 11751R, which are Dr. Bea's expert report and his rebuttal report in this case in Phase Two.

MR. BROCK: Other than the motions that we filed, we have nothing else.

THE COURT: All right. I will accept him as an expert in the field tendered and his reports will be admitted.

(WHEREUPON, the above referenced exhibits were admitted.)

DIRECT EXAMINATION BY MS. GREENWALD:

Q. Dr. Bea, I'm going to read these two opinions and ask you if these are your opinions in Phase Two.

One, "BP Management knowingly ignored required Process Safety Management mitigations for blowout source

11:14:34 control in deepwater exploration wells drilled by
11:14:37 contractor-owned Mobile Offshore Drilling Units in the
11:14:41 Gulf of Mexico."
11:14:41 And Number 2, "BP Management's Process Safety
11:14:44 Management blowout source control failures resulted from a
11:14:47 disregard of the risk of loss of primary containment and an
11:14:51 uncontrolled flow of oil and gas from the Macondo well."
11:14:54 Are those the two opinions in your Phase Two
11:14:57 testimony?
11:14:57 A. Yes.
11:14:58 Q. Dr. Bea, very briefly, can you please describe to the
11:15:04 Court process safety management in the context of the two axes
11:15:09 that we talked about just a moment ago?
11:15:14 A. Process safety management is a technology to help us
11:15:21 assess and manage the risk of catastrophic accidents. It
11:15:28 involves prevention and mitigation of techniques.
11:15:33 Q. As I said earlier, did your testimony in Phase One relate
11:15:36 to the prevention of major failures?
11:15:38 A. Yes.
11:15:38 Q. And is your testimony here in Phase Two about the
11:15:41 mitigation of those failures?
11:15:42 A. Yes.
11:15:43 Q. Now, in analyzing BP's mitigation of major failures, have
11:15:48 you used standard recognized process safety principles to reach
11:15:51 the opinions expressed in your reports?

11:15:53 A. Yes.

11:15:54 MS. GREENWALD: Carl, if you could pull up D-20021,
11:15:57 please.

11:15:57 EXAMINATION BY MS. GREENWALD:

11:15:58 Q. Very briefly, in a sentence, can you please describe to
11:16:03 the Court what the Y axis is, just to orient us?

11:16:05 A. Well, the Y axis is the probability of a major system
11:16:15 failure. It's in probability terms because it has to treat a
11:16:24 variety of uncertainties, that puts the topic of my Phase One
11:16:30 testimony.

11:16:30 Q. And what does the X axis depict on this graph?

11:16:33 A. The X horizontal axis depicts the consequences of a major
11:16:42 accident. In this case, I dimensioned it in terms of U.S.
11:16:51 dollars, and it excludes cost for loss of human life.

11:16:56 Q. What does it mean to be safe or fit for purpose in the
11:17:01 context of process safety as depicted in the graph?

11:17:04 A. Safe is defined as freedom from undue exposure to injury
11:17:15 and harm.

11:17:16 Q. Now, in the center of that graph there's three lines. In
11:17:20 the center, in yellow, it says, "As low as reasonably
11:17:24 practicable."

11:17:24 What does "as low as reasonably practicable" mean in
11:17:28 the context of the process safety, again, focusing, if you
11:17:30 will, on mitigation?

11:17:32 A. Well, it's shown in the illustration. It divides the risk

space where risk is a combination of likelihood and consequences of failure into two zones. One zone is called "Safe" or "Fit for Purpose." The other zone is called "Unsafe, Not Fit for Purpose."

The "As Low As Reasonably Practicable," A/R, zone separates those two sectors.

MS. GREENWALD: Carl, if you can pull up D-20022, please.

EXAMINATION BY MS. GREENWALD:

Q. Did BP's drilling and operations practice guide require BP to manage all risks to a level as low as reasonably practicable?

A. Yes.

MS. GREENWALD: Carl, if you can pull up D-20023, please.

EXAMINATION BY MS. GREENWALD:

Q. Now, this is BP's major accident risk matrix; is that right?

A. Yes.

Q. Can you explain the horizontal upper axis on this D-20023, again, in the context that -- if you can, using the graph we used, which is D20021, if you can use the same terms for comparison purposes.

A. The horizontal axis is, in this case, expressing the likelihood of a major failure. The BP risk management,

starting over to the left with the Number 1, indicates a very low likelihood, but on an annual basis, less than one chance in a million.

As you move the numbers from one progressively to the right to eight, the probability of failure approaches one in a year, meaning it's an absolute certainty.

Q. And if you can explain the vertical axis, the A through D, on the major accident risk matrix, please.

A. Well, in the vertical direction, the consequences are being expressed by -- the risk matrix expresses consequences in a variety of ways. It could address a loss of human life, by environmental impacts, by damage to reputation, by license to operate, and a very important measure of the consequences are financial loss.

The A category is the most undesirable or highest consequence category shown on the major accident risk plot. As you move from A to B to C to D, the consequences are decreasing. There is E, F, and G categories, which means the consequences are very low.

Q. Dr. Bea, there is a black box on this D-20023. Can you please tell the Court what that black box means, what it is?

A. Well, the black box identifies the area that if a project is undertaken, it requires multiple senior vice-president approvals before such projects are undertaken.

I would comment that when I saw that black box,

11:21:55 1 together with that management policy, I was very surprised
11:22:02 2 because that type of policy is not part of either the
11:22:13 3 industrial or commercial risk management decision-making that
11:22:22 4 I've seen anywhere. This is unique.
11:22:26 5 Q. Dr. Bea, do you have an opinion whether BP operated the
11:22:31 6 Macondo Well outside of the --
11:22:34 7 MR. BROCK: Your Honor, I apologize. Dr. Bea
11:22:39 8 volunteered to offer some additional information in response to
11:22:41 9 that question. What he just said is not in his report, being
11:22:45 10 surprised about something, not being consistent with his view
11:22:48 11 of industry, so I would move to strike.
11:22:51 12 MS. GREENWALD: Your Honor, I'm fine with that. I
11:22:54 13 agree. We don't have to argue that.
11:22:54 14 THE COURT: All right. We'll strike that part of his
11:22:57 15 last answer.
11:23:03 16 MS. GREENWALD: You mean just half the answer, right?
11:23:04 17 You're okay with the first part of the answer?
11:23:06 18 MR. BROCK: I object to what he said after he said, I
11:23:10 19 would like to volunteer.
11:23:11 20 MS. GREENWALD: I agree.
11:23:13 21 EXAMINATION BY MS. GREENWALD:
11:23:14 22 Q. Dr. Bea, do you have an opinion whether BP operated the
11:23:16 23 Macondo Well outside of the ALARP, in the not for purpose zone?
11:23:22 24 A. Yes.
11:23:22 25 Q. What is that opinion?

11:23:24 A. That they did operate outside of ALARP.
11:23:28 Q. Where do you place, you, in your opinion, place the
11:23:31 Macondo Well on the BP major accident risk?
11:23:34 A. Well, as shown on this plot, I place it at A5.
11:23:40 Q. That blue dot, in fact, was not part of BP's original
11:23:44 document; that's something you added, right?
11:23:46 A. That's correct.
11:23:46 Q. How did you reach the conclusion of Macondo belonging in
11:23:51 A5?
11:23:51 A. First, the method that I've used is documented in detail
11:23:59 in my Phase Two Expert Report. Basically, I used documentation
11:24:09 provided by BP. For example, they have a guideline for process
11:24:20 safety management people to evaluate the likelihoods of a major
11:24:28 blowout of an exploratory well in ultra deepwater involving
11:24:36 high pressure, high temperature reservoirs. I used those
11:24:44 characteristics probabilities directly.
11:24:48 The consequences I base on a relief well that would
11:24:55 take between 100 and 150 days to complete. The well would be
11:25:04 floating at the worst case discharge in the Exploratory
11:25:09 Drilling Program of 162,000 barrels per day, and I used a
11:25:21 consequence cause of $2,500 per barrel of oil spilled.
11:25:28 MR. BROCK: Your Honor, I apologize for interrupting,
11:25:30 but Dr. Bea did not refer in any way to assigning a per-barrel
11:25:37 cost to his analysis, and so I object and move to strike that.
11:25:42 MS. GREENWALD: Your Honor, that's all in his analysis

on pages 11 through 12. He may not have the exact number down there, but he explains -- he refers to the document that underlies that 2500.

THE COURT: All right. I'll overrule the objection. Go ahead.

MS. GREENWALD: Thank you, Your Honor.

EXAMINATION BY MS. GREENWALD:

Q. Now, where did BP place the Macondo on the MAR?

A. BP placed the Macondo at the C4 category.

Q. When was that?

A. That was at the end of 2009. The results are documented in BP's Integrity Management Report, January 2010.

Q. Do you disagree with BP's assessment for Macondo?

A. Yes.

Q. Why?

A. Principally because of the two different evaluations of consequences. Our evaluations of the likelihood of an uncontrolled blowout are very close together. The difference is consequence.

BP's evaluation of consequence in cost terms indicates the consequence would cost between one hundred million and one billion. My analysis led to the conclusion that the financial cost would substantially exceed ten billion, for the A category.

MR. BROCK: Your Honor, just for the record, and I

apologize for interrupting, but the number 10 billion is not an opinion that he expresses about BP in his report. It's related to the 2500. I know, I'm just objecting to it.

THE COURT: Well, I read over his report last night, and I did see the ten billion dollar reference.

MS. GREENWALD: Right. It's also referring to the MAR. He's just saying there the MAR has one to 10 billion and where that --

THE COURT: Go ahead and continue. I overruled the objection.

MS. GREENWALD: Thank you, Your Honor.

EXAMINATION BY MS. GREENWALD:

Q. Even accepting BP's risk assessment, Dr. Bea, was Macondo's risk in the high risk zone in the MAR?

A. Yes.

Q. What should happen if risk is in the red zone?

A. Well, the Process Safety Management Guidelines say that it's not allowable to drive over the speed limit in conditions. It says that if you're in the red zone, you should stop, mitigate the risk, both addressing likelihood and consequences. When an effective technique -- set of techniques have been developed, then you resume operations, further testing the improved risk management until you've arrived at a stable, safe risk.

Q. Dr. Bea, is that depicted on D20024?

11:29:09 A. Yes.

11:29:13 Q. Carl, if you can split the screen between D20021 and 0023,
11:29:19 please.

11:29:28 Is BP's MAR and the graph that you originally went
11:29:42 over, which is the D20021, essentially the same risk analysis?

11:29:46 A. Yes.

11:29:47 Q. If you can pull up D-20025, please.

11:29:51 Did BP Drilling and Operations Practice Guide require
11:29:55 BP to prepare a well-specific source control guide for Macondo?

11:30:02 A. Very importantly, yes, it did.

11:30:03 Q. Did BP prepare a well-specific control guide for Macondo?

11:30:08 A. No.

11:30:09 Q. Now, Dr. Bea, I would like to turn your attention now to
11:30:13 notice or early knowledge of the risks of a need to mitigate
11:30:18 the risks of a blowout.

11:30:19 In reaching your opinions in this case, did you
11:30:21 review publicly available reports that would have informed BP
11:30:26 of the types of source control available for deepwater wells
11:30:30 and the need for developing source control technology in light
11:30:33 of those risks of a deepwater blowout?

11:30:35 A. Yes.

11:30:35 Q. Did you help prepare summary slides of those reports that
11:30:39 you reviewed?

11:30:39 A. Yes.

11:30:39 Q. Is the Joint Industry Blowout Control Report, Drilling

11:30:45 Engineers Association, or DEA-63, which Mr. Barr talked about
11:30:49 in his opening, which was published in 1991, one of those
11:30:52 reports?
11:30:52 A. Yes.
11:30:52 Q. What guidance, generally -- just highlight points, please,
11:30:56 briefly -- did DEA-63 provide to industry about the need for
11:31:00 source control?
11:31:02 A. The DEA-63 is an important foundation document that
11:31:12 identified four important things. The first was that as
11:31:20 drilling would proceed into ultra deepwater and ultra high
11:31:28 productivity reservoirs, that a blowout risk would increase
11:31:36 substantially.
11:31:37 The second key point that DEA-63 makes is the
11:31:45 consequences of such blowouts due to the high productivity of
11:31:52 such reservoirs would be severe.
11:31:57 The third thing DEA-63 points out is the need for
11:32:06 diligent preparation and planning to be able to rapidly abate
11:32:14 the source of blowouts.
11:32:17 The fourth key point was that capping vertical
11:32:22 intervention forms an important part of such mitigation
11:32:29 systems.
11:32:29 Q. Carl, if you could pull up D-20026, please.
11:32:34 Was the goal, Dr. Bea, of DEA-63 to address problems
11:32:38 that operators would face in a deepwater blowout scenario?
11:32:42 A. Yes.

11:32:43 Q. If you can go to D-20027, please.

11:32:46 What does DEA-63 say about wells drilled at

11:32:50 5,000 feet depth?

11:32:52 A. Well, at this time, they are unique, unusual.

11:33:00 Q. What does DEA-63 suggest as an option for deepwater source

11:33:04 control?

11:33:06 A. A vertical intervention, capping.

11:33:08 Q. Carl, if you can go to D-20028, please.

11:33:12 What does DEA-63 say about the need to develop

11:33:18 Blowout Contingency Plans?

11:33:19 A. That they need to be developed.

11:33:22 Q. Do they need to be developed before or after an event?

11:33:27 A. Before. Preparation pays.

11:33:31 Q. What source control measures should that plan include,

11:33:36 according to DEA? If you could read the two highlighted

11:33:39 points.

11:33:39 A. The two highlighted points, first, pollution containment

11:33:45 abatement procedures, and, second, a vertical intervention

11:33:51 offset kill operational guidelines.

11:33:54 Q. If you can go, please, to D-20029.

11:34:00 Does DEA-63 consider whether deepwater blowout

11:34:04 technology could be inadequate as of 1991?

11:34:06 A. Yes.

11:34:07 Q. D-20030, please.

11:34:13 What does DEA-63 say about the risks of drilling into

deeper and deeper waters?

A. Well, it's like in the lower box, they are clearly telling industry that the risks are increasing substantially.

Q. What does DEA-63 say about the consequences should such an event occur?

A. That it can be catastrophic.

Q. D-20031, please.

Now, DEA-63 describes a blowout scenario of a disabled, severed riser and a well blowing from a BOP. Does that sound like Macondo?

A. That sounds like and looks like Macondo.

Q. If you can go --

Is the device that ultimately capped the Macondo Well what's shown in --

I'm sorry, if you can go to D-20032, please. Getting ahead of myself.

Now, this is also taken from DEA-63. Am I correct that it depicts various vertical intervention techniques for a blowing well?

A. Yes.

Q. Now, you've highlighted the bottom right-hand box; is that right?

A. That's correct.

Q. What does that highlighted box show?

A. Well, that's a vertical -- pardon me, a capping stack

being mounted on a nonvertical failed BOP.
Q. That's the cap that ultimately capped the Macondo Well, right?
A. That's right.
MR. BROCK: Your Honor, I'm going to object to that. Dr. Bea has acknowledged in his deposition that he does not have expertise in the design and use of capping stacks, so I don't think it's appropriate for him to answer that.
MS. GREENWALD: I'm not asking him that.
THE COURT: I don't think that question required expertise in capping stacks. Overrule the objection.
EXAMINATION BY MS. GREENWALD:
Q. Did DEA-63 in 1991, Dr. Bea, conclude that Phase Two of this report -- this is Phase One -- did it conclude that Phase Two of the report was not immediately necessary?
A. Yes.
Q. Why?
A. Well, the industry in 1991 was a decade away from the time it would move into ultra deepwater encountering the high pressure or high temperature or high productivity areas. So that intervening 10 years was to be the 10 years industry would use to be properly prepared to face or manage the risks they would encounter in the 2000s.
Q. D-20033, please.
Now, this is the International Association of

Drilling Contractors, or IADC, Deepwater Well Control Guidelines from 1998. Did you review those as well?

A. Yes.

Q. Is this the same description of a blowout that was identified in DEA-63 back in 1991?

A. Essentially, yes.

Q. If you can go to D-20034, please.

Is this the same depiction of a blowout scenario in DEA-63?

A. Yes.

Q. In fact, this is taken from DEA-63, right?

A. Correct.

Q. D-20035, please.

What did the 1998 Deepwater Well Control Guidelines inform BP and others about the availability of deepwater well control measures at that time?

A. The essence is it's not available.

Q. If you can go to D-20036, please.

This is the PCCI Oil Spill Containment Remote Sensing and Tracking for Deepwater Blowouts, 1999. Have you reviewed this report as well?

A. Yes.

Q. What does this report inform BP and others in 1999 about the risks of a blowout?

A. That they are high, and the risks will be increasing.

11:38:17 Q. What does this report inform BP in 1999 about the best
11:38:22 options for subsea blowout, quote/unquote, "technology"?
11:38:25 A. Vertical intervention, capping.
11:38:26 Q. If you can go to D-20037, please.
11:38:31 Now, this is BP Exploration's best available
11:38:36 technology for operations in Alaska; is that right?
11:38:39 A. Correct.
11:38:39 Q. What does BP say in this document about the two methods
11:38:42 for regaining control of a blown-out well?
11:38:45 A. They evaluated two techniques: One, relief well; and,
11:38:52 two, capping.
11:38:53 Q. Did BP say in this document that capping is best available
11:38:58 technology for blowout source control?
11:39:00 A. Yes, they DID.
11:39:01 Q. What did BP calculate to be the reduction in response time
11:39:04 with the use of capping devices?
11:39:06 A. 50 percent.
11:39:06 Q. If we can go to D-20038, please.
11:39:10 This is the 2003 Society of Petroleum Engineers IADC
11:39:15 Drilling Conference. Does this conference refer to the work
11:39:18 done in DEA-63 in 1991, once again?
11:39:21 A. Yes.
11:39:21 Q. Does it also note that the 1991 DEA work did not consider
11:39:27 drilling depths greater than 3500 feet?
11:39:29 A. Yes.

11:39:29 Q. What did this drilling conference material include about
11:39:32 whether blowout contingency procedures had kept up with current
11:39:36 technology?
11:39:37 A. It concluded that they had not kept up with the
11:39:42 technology.
11:39:43 Q. In fact, it even asks industry whether it's ready to
11:39:47 handle such a blowout, doesn't it?
11:39:48 A. Yes.
11:39:48 Q. What did the conference materials say about the likelihood
11:39:52 of a blowout occurring?
11:39:54 A. It was high.
11:39:54 Q. If you can go to D-20039, please.
11:40:00 Again, this is the SPE IADC Blowout -- this is a
11:40:04 different year -- Blowout Control Best Practices
11:40:06 Recommendations from 2005. What is the first offshore blowout
11:40:11 control technology identified?
11:40:13 A. Capping.
11:40:13 Q. If we can go to D-20040, please.
11:40:17 This is an article written by Ole Rygg of Add Energy,
11:40:21 a drilling contractor, in 2005. Is Add Energy one of the well
11:40:27 control specialists this BP employs in its drilling operations
11:40:30 in the Gulf of Mexico?
11:40:30 A. Yes.
11:40:30 Q. What did Dr. Rygg advice about the need and importance for
11:40:35 source control preplanning?

11:40:36 A. That it is absolutely essential that it be properly
11:40:40 developed.
11:40:40 Q. If you can go to D-20041, please.
11:40:44 This is the 2008 International Oil Spill Conference.
11:40:48 How is oil spill response explained in the first box of that
11:40:51 report?
11:40:53 A. It reads --
11:40:55 Q. The highlighted part, please.
11:40:57 A. "Oil spill response readiness is not done in one set of
11:41:10 tasks. Instead, readiness evolves from recognizing the need
11:41:11 for preparedness, to allocating resources to address the issue,
11:41:16 and gaining participation."
11:41:21 Q. Dr. Bea, I'm going to move you to a new topic, talk to you
11:41:24 about the Oil Spill Response Plan briefly.
11:41:27 In reaching your opinions in the case, have you
11:41:29 reviewed BP's Oil Spill Response Plan?
11:41:32 A. Yes.
11:41:32 Q. If you can pull up D-20042, please.
11:41:32 Where does BP place source control in terms of
11:41:32 importance?
11:41:40 A. As the second priority.
11:41:41 Q. What is the first -- what is it after?
11:41:45 A. The first priority was ensuring the safety of citizens and
11:41:52 responders.
11:41:53 Q. If you can go to D-20043, please.

11:41:57 What does the plan provide regarding source control?
11:42:00 A. Well, as highlighted, the plan is to assemble a team of
11:42:09 trained experts to consider the situation. I call it a -- this
11:42:18 is a think about it but when it happens plan.
11:42:24 Q. Did BP consider the Oil Spill Response Plan to be a source
11:42:29 control plan?
11:42:29 A. They considered it not to be a source control plan.
11:42:32 Q. If you can pull up D-20044.
11:42:39 What did BP's 30(b)(6) witness say relating to
11:42:42 source -- I'm sorry, if we could start over.
11:42:43 What did BP's 30(b)(6) witness relating to source
11:42:46 control within the OSRP testify about whether the Oil Spill
11:42:52 Response Plan is a source control plan?
11:42:54 A. It says, "As indicated at the bottom, this plan was not
11:43:01 meant to address source control."
11:43:03 Q. If you can go to D-20045, please.
11:43:09 In reaching your opinions, did you also review the
11:43:10 testimony of the CEO of BP to learn whether BP believed it had
11:43:15 a source control plan as of April 20, 2010?
11:43:17 A. Yes.
11:43:17 Q. What did Dr. Hayward state in his testimony about the
11:43:21 existence of a source control plan? If you can read the top
11:43:23 box, please.
11:43:26 A. As shown at the top box, he said, "We did not have a plan
11:43:33 to intervene to prevent flow in the subsea until the relief

11:43:39 well was there."
11:43:42 Q. Did you also review the testimony of MMS Regional Director
11:43:46 for the Gulf of Mexico, Lars Herbst?
11:43:48 A. Yes.
11:43:48 Q. Did you form am opinion based on that testimony whether
11:43:51 MMS expected BP to be prepared for a deepwater blowout?
11:43:55 A. Yes.
11:43:55 Q. If we can go to D-20046, please.
11:43:59 What did Mr. Herbst testify about BP's source control
11:44:03 plan?
11:44:04 A. As I highlighted from Mr. Herbst's testimony, the question
11:44:12 was, "Their obligation under regulation is to abate the source
11:44:18 as quickly as possible, correct?"
11:44:20 Answer: "Correct, yes. We expected them to be able
11:44:24 to contain a deepwater blowout."
11:44:27 Q. Did you also review BP's initial Exploration Plan for
11:44:32 Macondo in reaching your opinions in this case?
11:44:33 A. Yes.
11:44:33 Q. D-20047, please.
11:44:41 Did BP certify the following to the government in its
11:44:45 Oil Spill Response Plan --
11:44:45 A. Yes.
11:44:47 Q. I have to put on my glasses, too, Dr. Bea. One second.
11:44:53 -- "I hereby certify that BP Exploration and
11:44:55 Production, Inc., has the capability to respond to the maximum

11:44:58 extent practicable to a worst-case discharge"; is that the
11:45:01 certification BP gave to MMS?
11:45:03 A. Yes. I would further note for the Court that the
11:45:12 162,000 barrels a day base plan, this is where I got that
11:45:18 figure from.
11:45:20 Q. You're talking about for your cost-benefit analysis and
11:45:24 your ALARP analysis?
11:45:27 A. Yes, ma'am.
11:45:27 Q. Did you review the testimony of Mr. Herbst to determine
11:45:30 whether MMS believed BP was prepared as it represented in its
11:45:34 initial Exploration Plan?
11:45:35 A. Yes.
11:45:36 Q. If you can pull up D-20048, please.
11:45:41 Did Mr. Herbst testify, "I would say that they were
11:45:44 not prepared to respond to whatever the actual rate that was on
11:45:47 this incident"?
11:45:48 A. Yes.
11:45:48 Q. Now, based on your review of the documents, did you form
11:45:54 an opinion whether BP considered a BOP to be a source control
11:45:58 measure to stop the flow of oil from a flowing well?
11:46:01 A. I did.
11:46:01 Q. What is that opinion?
11:46:03 A. Well, the essence of what came from that review was a
11:46:12 consensus that a blowout preventer is not a blowout stopper.
11:46:18 Q. Did you prepare a summary slide of the testimony in this

11:46:21 case that essentially says that a blowout preventer is not a
11:46:23 blowout stopper?
11:46:25 A. Correct.
11:46:25 Q. If you could please pull up D-20049.
11:46:30 In the interest of time, I won't go over this, but is
11:46:34 this the slide that you prepared of the testimony in this case,
11:46:36 or at least some of the testimony, that BOPs are blowout
11:46:41 preventers, but not blowout stoppers?
11:46:43 A. Correct.
11:46:44 Q. Did you also form an opinion that BP knew nearly a decade
11:46:48 before Macondo that a BOP and an ROV intervention could not be
11:46:52 relied upon to stop a flowing well?
11:46:54 A. Yes.
11:46:54 Q. Did you base that opinion in part on the documents you
11:46:58 reviewed in this case?
11:47:00 A. Yes.
11:47:00 Q. If you could pull D-20050, please.
11:47:04 What did BP know in 2001 about attempting to use ROV
11:47:09 intervention to stop a flowing well?
11:47:14 A. BP engineers had specifically addressed this question.
11:47:23 Remarkably, they considered the *Horizon*. The condition was it
11:47:29 had driven off a blowout flowing at 100 to 300,000 barrels a
11:47:38 day. It was underway. The question was, can we close the rams
11:47:45 with ROV and shut in the well? The answer is, remarkably, a
11:47:52 short answer, no.

11:47:55 Q. If you can pull up D-20051, please.

11:47:59 Is West Engineering a well control specialty company
11:48:03 upon which BP relied for its technical expertise?

11:48:06 A. Yes.

11:48:06 Q. Did you also review a report by West Engineering from 2003
11:48:09 on ROV intervention?

11:48:11 A. Yes.

11:48:11 Q. What did the West Engineering report conclude about
11:48:15 whether ROV intervention could be relied on for secondary
11:48:19 intervention once a well is flowing?

11:48:21 A. It concluded that it should not be used.

11:48:24 Q. Now, you were in the courtroom yesterday when Mr. Brock
11:48:27 gave his opening statement, right?

11:48:28 A. Yes.

11:48:28 Q. Could someone put on the ELMO, please.

11:48:33 Mr. Brock said to BP -- I'm taking off the heading to
11:48:39 your slide, I apologize --

11:48:43 MR. BROCK: I don't mind the heading being up there.

11:48:46 MR. GREENWALD: I'm taking it off for a reason.

11:48:46 EXAMINATION BY MS. GREENWALD:

11:48:48 Q. -- that BP's deepwater well response was three points --
11:48:54 let me try to do this right -- quickly commence relief well
11:48:57 drilling, use ROV to attempt to activate the BOP, and stand up
11:49:01 a team of well control experts to analyze the well and
11:49:04 additional methods for controlling the blowout. Do you agree

with that? That's all BP had?
A. That was all BP had.
Q. Now, Carl, if you can go back to D-20043.
Did BP also certify to the MMS that it will have internal trained personnel to respond to a deepwater oil spill response?
A. Yes, it did.
Q. Did you form an opinion whether BP, in fact, trained personnel prior to April 20, 2010, in deepwater blowout source control?
A. Yes.
Q. Did you prepare summary slides of that testimony?
A. Yes.
Q. If you can pull up D-20052, please.
What did Mr. Morrison, BP Vice-President of Operations for the Gulf of Mexico, testify about whether he was trained in deepwater blowout source control?
A. He answered, "Not that I recall. No."
Q. D-20053, please.
What did Mr. Wellings, BP's head of the Well Capping Team, testify about whether he was trained in deepwater blowout source control?
A. Answer: "No."
Q. D-20054, please.
What did Mr. Frazelle, BP's Well Operations Manager,

testify about whether he was trained in deepwater blowout source control?

A. Comparable answer, "No."

Q. D-20055, please.

What did Mr. Harlan, BP's Special Projects Manager, testify about whether he was trained in deepwater blowout source control?

A. Answer: "No."

Q. D-20056.

What did Mr. Bush, who we just talked about a few minutes ago, BP's corporate representative on source control, answer when asked if BP operators had been trained in uncontrolled deepwater blowout events?

A. Mr. Bush testified, "We didn't -- had not drilled on that yet."

Q. This is our last point, Dr. Bea, and then I will tender you to BP.

Did you look -- form an opinion in this case based on your review of the documents and testimony whether BP spent any money on source control technology prior to April 20, 2010?

A. Yes.

Q. What was that opinion?

A. That they had not spent any money.

Q. Did you form an opinion based on your review of the documents and testimony in this case whether BP spent any money

on research and development relating to source control technology prior to April 20, 2010?

A. Yes.

Q. What was that -- what is that opinion?

A. That they had not spent any money on research and development.

Q. Did you prepare a couple of summary slides about some of that testimony and information?

A. Yes.

Q. Okay. If we can have D-20057, please.

These are a group of BP's responses to plaintiffs' request to admit that you selected; is that correct --

A. Yes.

Q. -- relating to BP's expenditure on source control?

A. Yes.

Q. What did BP respond when asked if they had budgeted or spent any money on researching, testing, planning or building source control technology?

A. I said, consistently, the BP parties admit that they had not allocated, budgeted, approved, distributed nor spent funds researching, testing, designing, or planning.

Q. Then they go through various different technologies, correct?

A. Correct.

Q. If you can pull up D-20058, please.

What did BP's Andy Inglis, CEO of BP Exploration & Production, respond when asked whether BP had spent any money on source control technology?

A. Mr. Inglis responded, answer, "Zero dollars."

Q. 20059, please.

What did BP's 30(b)(6) corporate representative respond when asked if BP had allocated any funds at all for source control technology?

A. I'm unaware of any funds.

MS. GREENWALD: Thank you, Your Honor. No further questions.

THE COURT: How long do you expect your cross-examination to be?

MR. BROCK: 45 minutes to an hour, probably.

THE COURT: Let's just go ahead and take lunch. We'll do lunch and come back at 1 o'clock. Okay.

(WHEREUPON, at 11:53 a.m., the Court recessed for lunch.)

* * *

REPORTER'S CERTIFICATE

I, Cathy Pepper, Certified Realtime Reporter, Registered Merit Reporter, Certified Court Reporter of the State of Louisiana, Official Court Reporter for the United States District Court, Eastern District of Louisiana, do hereby certify that the foregoing is a true and correct transcript to the best of my ability and understanding from the record of the proceedings in the above-entitled and numbered matter.

s/Cathy Pepper

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