Deposition Testimony of:

Jacqueline Michel

Date: August 1, 2014

Created by:

www.indatacorp.com

Page 7:17 to 8:01

00007:17 Q. Okay. Are you being compensated
18 for appearing here today?
19 A. Yes, I am.
20 Q. What is the rate at which you
21 are being compensated?
22 A. I forget. I don't remember.
23 Q. Do you know approximately what
24 that rate is?
25 A. It's either 250 an hour or 350
00008:01 an hour.

Page 10:24 to 13:13

00010:24 Q. Who are currently employed by?
25 A. Research Planning Incorporated.
00011:01 Q. And does that go by the acronym
02 of RPI at times?
03 A. Yes, it does.
04 Q. What is the business of RPI?
05 A. RPI is a scientific consulting
06 company.
07 Q. And how long has RPI been in
08 existence?
09 A. The original RPI as formed in
10 March 1977.
11 Q. Okay. And when you say it's "a
12 scientific consulting company," is there a
13 specific area that it consults in within the
14 field of science?
15 A. Not one specific, but the
16 general areas are coastal resource
17 management, restoration, oil spill response,
18 oil spill planning, oil spill assessment,
19 ge- -- geospatial mapping, risk assessment,
20 coastal geology, agriculture, environmental
21 assessments.
22 Q. And you have been the president
23 of RPA [sic] since 2000?
24 A. Yes.
25 Q. Prior to being the president of
00012:01 RPI, you were employed in what capacity?
02 A. I was the vice president.
03 Q. Okay. And you were one of the
04 original founders of the company --
05 A. Yes, I --
06 Q. -- correct?
07 A. Yes, I was.
08 Q. Okay. Does RPI perform
09 consulting on behalf of the United States
10 government, any agency of the government will
11 government?
12 A. We are awarded contracts by the
13 Federal Government and state governments to o

projects.
Q. How many different contracts has RPI been awarded on behalf of the United States government or agencies of the government?
A. On the order of 100.
Q. Okay. How many projects do you currently have pending on behalf of the U.S. government or agencies of the government?
A. What do you mean by "pending"?
Q. That is, matters that are active.
A. Oh, current contracts?
Q. Yes.
A. On the order of ten.
Q. And do you charge by the hour, then, in connection with those projects?
A. Yes.
Q. How much of your time do you spend working on those projects that RPI is conducting on behalf of the U.S. government?
A. 75 percent.
Q. Okay. So fair to say a vast majority of your time is spent working on projects in --

Page 13:17 to 13:21

Q. (BY MS. KARIS) -- a vast majority of your time is spent working on projects for which RPI has been retained on behalf of the government or directly by the government, correct?

Page 13:23 to 14:02

A. I work about 75 percent of my time on projects that are either under direct contract to the government or I'm a sub- -- I -- RPI is a subcontractor to other entities that have government contracts.

Page 14:20 to 14:22

Q. Is RPI your full-time employment?
A. Yes.

Page 15:14 to 17:18

Is it fair to say that you have substantial experience responding to oil spills?

A. I have been responding to oil spills since 1976, so I have that many years of experience.
Q. And so would you characterize that as substantial experience in responding to oil spills?
A. Yes.
Q. And does that experience include conducting assessments of environmental damage?
A. My spill response expe- -- you know, the work I do in oil spill response is we do, you know, risk assessment and impact assessment. We don't use the word "damage" in response.
Q. Okay. Then I stand corrected. Is it correct to say you have substantial experience in doing impact assessment of the -- to the environment?
A. In my role as a responder for -- yes.
Q. Okay. And would that include impact assessment to shorelines?
A. Yes.
Q. And would that include impact assessment to marshes?
A. Yes.
Q. Prior to your involvement in the Deepwater Horizon spill, on how many occasions had you done impact assessments for shorelines, approximately?
A. I have responded in the field to over 50 spills. And under my contract to -- the RPI's contract to NOAA, we provide resources at risk, including shoreline risk assessment for spills, potential spills for up to a hundred per year.
Q. When did you first become involved in the Deepwater Horizon spill?
A. I was requested to go on scene on the 28th of April, 2010.
Q. And who contacted you in connection with going on scene in April -- on April 20th, 2010?
A. The Emergency Response Division of the National Oceanic & Atmospheric Administration.
Q. Okay. And the national atmospheric -- I'm sorry, the National Oceanic & Atmospheric Administration is known as NOAA?
A. Yes.

00017:22 Q. What was your understanding of
23 what your role was to be in connection with
24 the Deepwater Horizon spill on April 20th,
25 2010?
00018:01 A. I was asked to come in to the
02 command post and run the -- be the NOAA SCAT
03 coordinator.
04 Q. Okay. And when you say "SCAT,"
05 that's an acronym?
06 A. It's for the Shoreline Cleanup
07 Assessment Technique.
08 Q. Okay. On how many prior
09 occasions had you served as the SCAT
10 coordinator prior to the Deepwater Horizon
11 spill?
12 A. On the order of 30 times.
13 Q. Okay. Can you describe for the
14 Court what the responsibilities of a SCAT
15 coordinator in response to a spill are,
16 including what your responsibilities were for
17 the Deepwater Horizon in that capacity?

Page 18:19 to 19:22

00018:19 A. The best way to answer that,
20 because every spill is different, but for the
21 Deepwater Horizon as the SCAT -- as the NOAA
22 SCAT coordinator for Louisiana, my job was to
23 establish a SCAT program, put together teams
24 to conduct SCAT surveys, develop the -- the
25 process and the terminology that the teams
00019:01 would use in describing the oiling
02 conditions, make sure that the -- there was a
03 health and safety plan for the teams and the
04 teams were aware of that, make sure that the
05 teams were trained or qualified. I set their
06 schedules every day. Review their forms when
07 they turn them in at night. Direct the SCAT
08 data manager who were -- who was entering all
09 the data. Generate reports on the status of
10 the SCAT surveys. Write shoreline treatment
11 recommendations, we called them STRs, for
12 different types of treatment along the
13 shoreline. Develop -- work with the
14 stakeholders to develop what we call the no
15 further treatment guidelines. And then
16 review the results of inspections and
17 coordinate inspections with operations. Work
18 with operations on making sure the cleanup
19 techniques that were recommended by SCAT were
20 properly implemented. Review the inspection
21 process and up- -- continually to update the
22 status of segments.

Page 20:02 to 20:05

00020:02 How long did you remain in your
03 capacity as the SCAT coordinator for the
04 Deepwater Horizon spill?
05 A. I consider --

Page 20:07 to 20:11

00020:07 A. (Continuing) I consider myself
08 still to be the Louisiana -- the NOAA SCAT
09 coordinator for Louisiana because we are
10 still doing some final QA of the SCAT
11 database for Louisiana.

Page 21:05 to 21:11

00021:05 Q. Okay. So for approximately two
06 and a half years you were based out of
07 Louisiana in your capacity as the SCAT
08 coordinator or a SCAT coordinator, correct?
09 A. Yes, when I was on rotation, all
10 my work was done mostly on site, yes, in
11 Louisiana.

Page 22:01 to 24:10

00022:01 Q. (BY MS. KARIS) Okay. Were you
02 working full-time as the NOAA SCAT
03 coordinator for the Deepwater Horizon
04 incident?
05 A. Yes.
06 Q. And from October of 2012 to
07 present are you still working full time as
08 the NOAA SCAT coordinator for the Deepwater
09 Horizon spill?
10 A. No, let -- let me go back and
11 correct my former answer. Is that, you know,
12 my role -- my full-time role as -- was the
13 NOAA SCAT coordinator during my response to
14 Deepwater Horizon. I did not work full time
15 on that, and I don't work full time on it
16 now. I -- I have many other projects that I
17 spend time on.
18 Q. Okay. So to go back, then,
19 during the time that you were on site as the
20 NOAA SCAT coordinator, what percentage of
21 your time were you focusing on the Deepwater
22 Horizon spill, as opposed to other projects,
23 approximately?
24 A. Over what time period?
25 Q. While you were on site.
00023:01 A. On site. Oh, for --
02 Q. April 2010 to October of 2012.

A. I'd say 80 percent of my time.
Q. And since October of 2012 to present, approximately what percentage of your time is spent working on the Deepwater Horizon oil spill?
A. On the order of 10 to 15 percent.
Q. The position of SCAT coordinator, does that fall within the planning section?
A. Yes.
Q. And who did you report to while you were on site as a NOAA SCAT coordinator?
A. Within the Incident Command structure I was reporting to the SCAT program coordinator, who's -- who was Richard Santner from BP initially, and then -- and his rotation partners.
Q. So you worked pretty closely, then, with Mr. Santner; is that correct?
A. Yes.
Q. And did you also work closely, then, with his successors?
A. Yes.
Q. And those were BP employees?
A. They were BP employees initially, but eventually they were BP contractors.
Q. Okay. They were re- -- either directly BP employees or retained on behalf of BP as part of the response, correct?
A. Yes, BP always ran the SCAT program.

Page 24:18 to 26:04

Q. Sure. As a result of working closely with Mr. Santner, did you come to form a view as to his abilities or expertise to perform his responsibilities in connection with the Deepwater Horizon spill?
A. Yes.
Q. And what was your view?
A. He was a very professional spill response expert.
Q. And then, likewise, his successors, who were either BP employees or BP contractors, did you come to form a view as to their level of professionalism in dealing with the response?
A. Yes.
Q. And what was your view in connection with that?
A. They were also professional and very competent.

Q. Okay. Are you familiar with an outfit called Polaris Applied Sciences?
A. Yes, I am.
Q. Can you tell the Court what Polaris Applied Sciences' role was in connection with the Deepwater Horizon spill, as you understood it?
A. Polaris was hired by BP to supplement -- to provide expertise and team members and to the SCAT program.
Q. And did you work directly with employees of Polaris Applied Sciences in connection with the oil spill --
A. Yes.
Q. -- and the SCAT program in particular?
A. In -- in the SCAT program, you know, only.

Page 26:23 to 27:11

Did you know of Polaris Applied Sciences before the incident, before the Deepwater Horizon incident?
A. Yes.
Q. You had worked with them on prior occasions, correct?
A. Yes, I have.
Q. And as a result of your prior experience, plus working with the individuals from Polaris on the SCAT program for the Deepwater Horizon spill, did you come to form a view as to their level of expertise in responding to the oil spill?
A. Yes.

Page 27:13 to 27:16

Q. (BY MS. KARIS) And what -- what was your view? What is your view? Sorry.
A. You know, they have lots of experience in spill response and SCAT.

Page 27:23 to 29:13

Q. (BY MS. KARIS) Sure. Did the employees of Polaris that you interacted with perform their responsibilities in connection with SCAT for the Deepwater Horizon spill in a competent capacity?
A. Yes, they were competent.
Q. Do you know Dr. Elliot Taylor?
A. Yes.
Q. And have you worked with

Dr. Taylor prior to the Deepwater Horizon spill?
A. Yes.
Q. And did you work with Dr. Taylor in connection with the Deepwater Horizon spill?
A. Not really.
Q. Okay. From your prior experience with Dr. Taylor, do you have a view as to his level of competence in responding to oil spills?
A. Yes.
Q. And what is your view of Dr. Taylor's level of professionalism and competence?
A. He is very professional and competent.
Q. You indicated that from October of 2012 to present you've spent approximately 10 percent of your time working on Deepwater Horizon spill matters. Can you describe for the Court what your responsibilities have been from October 2012 to present, if they're in any way different from what you've listed for us in connection with your coordinator roles and responsibilities?
A. By that time the -- we were in the -- what we call the shoreline cleanup completion phase, and so most of my work was to manage the in- -- the SCAT inspection process forms and the GIS data associated with that.

Page 29:23 to 32:20

Q. Do you know Bea Stong?
A. Yes, I do.
Q. And can you tell us how you know Bea Stong in connection with the oil spill?
A. Bea Stong was one of the rotation partners with Richard Santner as the SCAT program manager for BP.
Q. And so she was another BP employee that you had an opportunity to work with?
A. Yes.
Q. And did you form a view as to her level of expertise and competence in working on the oil spill?
A. Yes.
Q. And what is your view of Ms. Stong's competence and expertise in responding to the spill?
A. She is competent and has expertise in spill response.

Q. In fact, you've published with Ms. Stong, correct? Published articles with Ms. Stong?
A. Yes, I may have. I don't -- oh, yes, it was the oil -- one of the abstracts or papers that there was a conference, yes. I was a co-author.
Q. Okay. Based on your involvement with the SCAT program, can you tell the Court what BP's role was in that program?
A. BP managed the program. They play -- played a very strong role in all aspects of the SCAT in terms of developing the shoreline -- you know, different phases of the SCAT program documents. They helped co-write those. They assisted in data management. All of the SCAT teams were led by a BP contractor, and so they had very much control over the overall program.
Q. And when you say they played a very strong role in all aspects of the SCAT program, what do you mean by that?
A. They had people involved at every level of the program. They managed it, and then at different levels within the organization from -- everywhere from the SCAT coordinator they had people who played a similar coordinator role. They provided the logistics coordinator. Their GIS and database people were involved in the design and maintenance and generation of data, SCAT data, and all of the -- the thing that's really important part about a SCAT is the team leader. Team leader was always a BP person.
Q. And why is the team leader a very important part of the SCAT program?
A. Because they are -- they lead the team, and they're responsible for safety, for -- they fill out forms. You know, a team leader always fills out the SCAT forms, and the team members just review them. So they have a very important role in, you know, what kind of data are collected and the quality of the data.
Q. And who were the BP team leaders that you interacted with that have played that very important role?
A. You want just a couple of names?
Q. Sure.
A. Because there were many. Andy Graham was a team leader, Doug Reimer. These are not -- these are all BP contractors.

00033:01 Q. Okay. So fair to say that BP --
02 and when I say "BP" in this litigation it's
03 BPXP, and I'm using "BP" for purpose of -- of
04 brevity. Is it fair to say that BP retained
05 a number of competent leaders that assisted
06 in the SCAT program?

Page 33:08 to 33:17

00033:08 A. BP brought in some, you know,
09 skilled people in SCAT who were the team
10 leaders. There was no -- you know, no
11 question that they were the team leaders.
12 Q. (BY MS. KARIS) Okay. And would
13 you agree that they were skilled in order to
14 assist in responding to the oil spill?
15 A. Some of them had never been on a
16 SCAT team before, but they were skilled in
17 shoreline surveys and learned the process.

Page 34:08 to 34:23

00034:08 Q. (BY MS. KARIS) You -- do you
09 understand, Dr. Michel, that the entity or
10 that is a party to this suit is a company
11 called BP Exploration & Production?
12 A. You know, I never thought of it.
13 I've always thought of BP as being, you know,
14 a company and it was the responsible party,
15 so I'm not --
16 Q. Fair enough. And I'm not -- I
17 wouldn't expect you to figure out the
18 difference between the different BP entities,
19 but when I say BP, for purposes of the record
20 you can think of it in terms of whoever you
21 consider to be BP; and the Court will resolve
22 the differences there. Fair enough?
23 A. Fair enough.

Page 35:03 to 36:02

00035:03 Q. (BY MS. KARIS) Okay. We were
04 speaking of the team leaders and your
05 statement earlier that they play a very
06 important role as part of the SCAT process.
07 Is it correct to say that in your experience
08 in dealing with the Deepwater Horizon spill,
09 from your perspective BP spared no expense in
10 getting whatever resources were necessary in
11 order to assist with the oil spill?
12 A. As the SCAT co- -- NOAA SCAT
13 coordinator we had no limited resources in --
14 in order to get our work done, except for the

fact that -- there is no expense spared, but still there -- you're still resource limited if there is not, you know, expert people available.
Q. Okay. To the extent that BP had access to experts, contractors, and those were needed for SCAT, was it your experience that BP would provide whoever and whatever it could provide to assist?
A. Yes.
Q. Do you agree that BP was a very active participant in the SCAT program and the response effort associated with it?

Page 36:04 to 39:10

A. BP led the SCAT program.
Q. (BY MS. KARIS) We've been speaking of SCAT for a while, but we haven't defined or described what SCAT is. Can you tell the Court what SCAT is as a program?
A. It is a systematic -- consists of a sys- -- systematic survey of shoreline to determine the oiling conditions and make recommendations for shoreline treatment according to the agreed upon cleanup end points. It's multidisciplinary and has representatives of, you know, federal, state, local, and responsible party rep- -- interests. Also, it can include landowners and other resource issues, as necessary, on the teams. And so they collect data in the field to inform -- to support the decision made by the Unified Command for shoreline treatment.
Q. The SCAT program existed prior to the Deepwater Horizon spill, correct?
A. SCAT as a integral part of a spill response has been in -- in -- established, you know, within the National Contingency Plan and within oil spill contingency plans, you know, at the regional level for decades, yes.
Q. Based on your involvement with the Deepwater Horizon spill, was the SCAT program that existed prior to the spill advanced or enhanced in its application in the spill?
A. There was -- I -- the main difference, I think, in the Deepwater Horizon SCAT program was its complexity and duration. Otherwise, the process, the terminology, you know, all followed the same kind of steps and process.
Q. Okay. And we'll talk a little

bit about those -- about the complexity and the duration, but is it fair to say that for each spill SCAT is -- is unique or the details of how SCAT is applied are unique?
A. We always say that a SCAT program is flexible and it is -- it is scaled appropriately to the response. So I would say not say unique.
Q. Okay.
A. But it is scaled appropriately.
Q. Do you agree that SCAT is a systematic approach to collecting data on shoreline oiling conditions?
A. Yes, that's what I think I said previously.
Q. And do you agree that there is -- it's an objective approach to collecting data to shoreline oiling conditions?
A. Yes, it uses data terminology and -- and -- and is just observationally objective.
Q. Is the SCAT program a process designed to support decision-making on appropriate cleanup methods?
A. Yes.
Q. And you referenced earlier that the SCAT program includes end points?
A. It can.
Q. Okay. What is an end point as it applies to SCAT?
A. Shoreline cleanup end points are the -- the amount of oil or the conditions under which a -- a oil -- a shoreline segment no longer needs to be -- undergo further treatment.
Q. In connection with the SCAT program applied at the Deepwater Horizon oil spill, were end points determined for that cleanup effort?
A. The shoreline cleanup end points were determined only within the Shoreline Cleanup Completion Plan.

Page 40:13 to 40:19

Q. (BY MS. KARIS) I apologize if my question was unclear. It was slightly different. Understanding that they could be different by spill, had you ever been involved in a spill that had the same end points as those required at the Deepwater Horizon spill?

Page 40:21 to 40:25

00040:21 A. There are many end points, so I
22 would never have been to a spill that had the
23 exact same end points for all the different
24 conditions as for the Deepwater Horizon, so,
25 no.

Page 43:08 to 44:01

00043:08 Q. Are you familiar with the
09 document titled Deepwater Horizon Clean-up
10 Completion Plan previously marked as
11 Exhibit 12184?
12 A. It is actually the Shoreline
13 Clean-up Completion Plan.
14 Q. Okay.
15 A. Yes, I am.
16 Q. And can you tell the Court what
17 a shoreline cleanup plan is? cleanup
18 completion plan, sorry.
19 A. This is the plan by which the
20 shorelines are inspected and moved out of the
21 response, where treatment -- you know,
22 response actions are deemed complete.
23 Q. Was this the completion plan
24 that was put in place for the Deepwater
25 Horizon spill?
00044:01 A. Yes.

Page 44:08 to 44:21

00044:08 Q. We've jumped a little ahead,
09 but, to be clear, do you know what the
10 process is -- first of all, what's the
11 purpose of the completion plan that's in
12 Exhibit 12184?
13 A. The Shoreline Clean-up
14 Completion Plan was the process to move
15 segments from operations through inspections
16 and out of the response.
17 Q. Okay. So after they've gone
18 through the SCAT process; inspection,
19 cleanup, eventually segments are moved out of
20 the response and deemed cleaned and complete,
21 correct?

Page 44:23 to 48:08

00044:23 A. The process is the SCAT does
24 surveys. They determine the need for
25 treatment. SCAT issues a shoreline treatment
00045:01 recommendation through the Unified Command,
02 gets reviewed by, you know, a large number of

organizations. It gets finalized, gets issued to operations. Operations conducts the treatment. SCAT will inspect against the cleanup -- the -- the no further treatment guidelines, you know, that goes on multiple times. And then under the Shoreline Clean-up Completion Plan, when operations considered that the shoreline was ready for inspection, that they thought it had met the end points, SCAT would inspect those and then they would fill out forms and document the oiling conditions and whether or not it met the Shoreline Clean-up Completion Plan end points and if they did, they would recommend that it be moved out of the response and then it would go through an inspection process and then through that inspection process, through multiple steps, if it continued to meet the shoreline cleanup end points, then SCAT would recommend that it would -- you know, SCAT only recommends. SCAT doesn't, you know, move anything out of the response. It goes in to the Unified Command, then it takes over through that review process.

Q. (BY MS. KARIS) Okay. Only the FOSC has authority to formally end treatment activities on a particular segment and move it out of active response, correct?

A. I -- yes, the -- well, as a Unified Command, but they say that Coast Guard has 51 percent of the vote.

Q. Okay.

A. So the -- the FOSC, the state OSC, and the RP all have authorities to participate in that decision to determine -- remove actions deems complete. Not -- I want to make a correction. It's not like the shoreline is clean. We don't -- we treat it, because, you know, there is -- when SCAT will inspect the shoreline, they don't document it as clean; they just document that it meets the end points.

Q. Okay. And would you agree with me that the end points are intended to be rigorous and strict?

A. Every cleanup end point -- no, I don't. Every cleanup end point has a or as low as reasonably practicable considering net environmental benefit and allowable treatment options.

Q. Okay. We'll talk in much more detail about those, but do you disagree that the intention is for the end points to be -- to reflect that the cleanup has reached the point where it's reasonably -- I'm sorry, as -- as low as reasonably practical or

allowable for further cleanup?
A. There is -- it's a specific word.
Q. Yeah, let's --
A. Specific words. As low as reasonably practical considering --
Q. I'm sorry.
A. -- allowable treatment techniques and net environmental benefit.
Q. Okay. And so the intention is to reach at least that standard that you've identified, correct?
A. That's correct.
Q. Or what is called a net environment -- environmental benefit, correct?
A. Yes.
Q. Okay.
A. That's -- that's -- in that terminology, as low as reasonably practical or, you know, considering net environmental benefit, those are the words in each of the shoreline cleanup end points.
Q. Okay. And do you agree that those two end points are rigorous end points?

Page 48:10 to 49:11

A. No, they're not rigorous, because they are interpreted, you know, on a case-by-case basis and a segment-by-segment and team-by-team basis. So they're -- they're not rigorous in that they are strict. They are -- they allow that flexibility to make that evaluation in the field.
Q. (BY MS. KARIS) Okay. And when you say they're not rigorous because they allow the flexibility, the whole purpose is to evaluate that particular segment under these partic- -- under these standards, correct?
A. They allow the teams to make recommendations, you know, that -- that -- that -- whether or not the shoreline oiling conditions meet those end points.
Q. Okay. And you indicated earlier that the Coast Guard has the 51 percent vote in this process, correct?
A. At the Unified Command level, yes.
Q. Okay. And final decision-making authority for whether a particular segment meets those end points ultimately rests with the Coast Guard or the FOSC of the Coast Guard, correct?

Page 49:13 to 50:02

00049:13 A. The Federal On-Scene Coordinator
14 for the Deepwater Horizon did have -- when
15 the -- did have the authority to move
16 segments out of the response, yes.
17 Q. (BY MS. KARIS) Not only had the
18 authority, had the final say, correct --
19 A. Yes.
20 Q. -- with the 51 percent vote?
21 A. I don't think the 51 percent
22 vote is written in -- in any document.
23 That's the state of the practice.
24 Q. Okay. Now, we spoke of your
25 involvement in the end points, and I want to
00050:01 go back now to Exhibit 13003.
02 A. Okay. That was in No. 20 --

Page 50:18 to 51:10

00050:18 Q. Who is Mr. McCleneghan that you
19 were writing to?
20 A. Mr. McCleneghan is a retired
21 employee of the California Office of Spill
22 Prevention and Response, and he was a
23 subcontractor to RPI to represent NOAA on the
24 SCAT teams in Mississippi.
25 Q. You write to Mr. McCleneghan,
00051:01 "Yup, this spill has been 'different' in many
02 ways, and especially now. I have no control
03 over the 'Shoreline Cleanup Completion Plan'
04 formerly known as the STage 5." It is being
05 written and negotiated by the Unified
06 Command, correct?
07 A. Yes.
08 Q. In the next paragraph you say
09 it -- quote, And it does have all those
10 impossible end points, correct?

Page 51:12 to 51:18

00051:12 A. Yes.
13 Q. (BY MS. KARIS) And then you go
14 down in the next paragraph and say, "Much of
15 this process is being driven by those
16 impossible cleanup end points you mentioned,
17 but the states won't let go of them,"
18 correct?

Page 51:20 to 53:23

00051:20 A. Yes.

Q. (BY MS. KARIS) What did you mean that the Shoreline Clean-up Completion Plan had impossible end points?
A. I was commenting on the -- the cleanup end points that were in what we call the eastern states. I was the SCAT -- the Louisiana SCAT coordinator and I was only responsible for operations in Louisiana, but I was commenting on the ones that were established -- negotiated between BP and the states for the eastern states.
Q. Okay. And with respect to the end points for the eastern states, what did you mean by they had impossible end points?
A. The -- the end point for amenity beaches in the eastern states was no visible oil or as low as reasonably practical, but...
Q. And why did you describe those as impossible end points?
A. Because this oil spill had occurred over -- you know, the oil release occurred over a long period of time. The oil got buried in the beaches, buried offshore, and con- -- was continuing to come ashore at trace amounts and -- and will continue to come ashore for, you know, years to come. And therefore if you held BP to the, you know, no visible oil, one -- one piece of oil would not meet end points, and that would be very -- that would be a difficult end point to achieve.
Q. Have you -- were the states pushing for cleanup end points that you viewed as impossible to meet?
A. You know, I was not involved in the eastern states negotiations, so I know that the cleanup end points that were included in every plan included no visible oil from the beginning for amenity beaches. So, yes, that would be very difficult.
Q. Okay. And when you say the states won't let them go, which states were you referencing?
A. What we call the eastern states, you know, Florida, Alabama, Mississippi.
Q. Had you ever been involved in any spills that for amenity beaches included a no visible oil standard?
A. I have not.
Q. Ultimately all of the shoreline segments met the cleanup end points that were required in the Shoreline Clean-up Completion Plan, correct?

Page 53:25 to 54:03

00053:25 A. No, not all shorelines met the
00054:01 cleanup end points. Some of them were moved
02 out of response through other mechanisms
03 without meeting the end points.

Page 54:16 to 54:20

00054:16 Q. Well, you understood, though,
17 that segments could not be moved out of the
18 shoreline cleanup process without the FOSC
19 signing off on them, correct?
20 A. Yes.

Page 55:05 to 56:02

00055:05 Q. (BY MS. KARIS) Do you agree
06 that active shoreline response has ended in
07 Louisiana and eastern states?
08 A. The responses is in a -- no.
09 Well, depends what you mean by "active."
10 They are in what -- what is euphemistically
11 called middle R, so there is still response
12 going on. It's just done through the
13 National Contingency Plan process. So there
14 is still cleanup going on of oil from the BP
15 spill.
16 Q. If there is oil that's
17 identified, there is a plan in place to
18 respond to whatever oil is identified,
19 correct?
20 A. Right.
21 Q. But with respect to known,
22 identified, visible oil, is the active
23 shoreline response over in Louisiana?
24 A. Yes.
25 Q. And is the active response
00056:01 likewise over in the eastern states with
02 respect to known identified visible oil?

Page 56:04 to 56:04

00056:04 A. Yes.

Page 56:10 to 58:18

00056:10 Q. (BY MS. KARIS) I'm going to
11 move back now to the SCAT program and all of
12 the steps that were required to get to the
13 Shoreline Clean-up Completion Plan end
14 points. You described the methodology that a
15 SCAT program involves, and I want to follow
16 up on a couple of those points. First, you
17 agree that the SCAT program for the Deepwater

Horizon spill was managed by Unified Command, led by the Federal On-Scene Coordinator, correct?
A. I guess I would not characterize it that way. BP was the -- managed the SCAT program. The leader -- the manager of the program was a BP representative. There was no Unified Command manager of the SCAT program. They operated under the Unified Command.
Q. Okay. If you turn to Tab 5 and put the next exhibit on there, 13004.
A. Right.
Q. Dr. Michel, do you recognize this document that we've marked as Exhibit 13004, titled "Extent and Degree of Shoreline Oiling: Deepwater Horizon Oil Spill, Gulf of Mexico"?
A. Yes, I do.
Q. And this is published in PLOS ONE, correct?
A. Yes.
Q. This is the June 2013 article that you told us you reviewed prior to your deposition, correct?
A. Yes.
Q. You're the lead author of this article?
A. Yes.
Q. Turn to the last page, please, Page 9, under "Acknowledgments." Do you see there where you wrote in your article, "The SCAT Program of the Deepwater Horizon oil spill was part of the Unified Command response structure, consisting of the U.S. Federal government, the respective State agencies, and BP," correct?
A. Yes.
Q. And then you go on to write, quote, All activities were managed by the Unified Command, led by the U.S. Coast Guard Federal On-Scene Coordinator, correct?
A. Yes.
Q. That's what you wrote in your article in June of 2013, correct?
A. Yes.
Q. The SCAT program which, as you wrote, had all activities management by the Unified Command, led by the United States Coast Guard Federal On-Scene Coordinator, was divided into two areas of operation, correct?

Page 58:20 to 59:04

Q. (BY MS. KARIS) Louisiana and

then the eastern states?
A. Oh, yes, the SCAT program was mis- -- met, definitely.
Q. Okay. The SCAT program was managed for Louisiana from Houma, correct?
A. For the first year.
Q. Okay. And I should say in the summer of 2010, for the first year?
A. Right.

Page 59:15 to 59:21

Q. Okay. With respect, if you know, to the Louisiana and eastern states SCAT program, were those managed consistently across those states?
A. At a high level, yes.
Q. And if you could turn to Tab 4, please, and mark that as 13005.

Page 60:03 to 60:25

Q. I'm sorry. "The Deepwater Horizon MC252-Macondo Shoreline Cleanup Assessment Technique (SCAT) Program," correct?
A. Correct.
Q. And it's dated February of 2011?
A. Yes.
Q. And you're one of the authors of this document, correct?
A. Yes.
Q. Along the Richard Santner that you mentioned earlier from BP, correct?
A. Correct.
Q. And it says there in the first paragraph of the "ABSTRACT" -- at the end it says, "the SCAT program was managed consistently across all States, from two locations:" Houma, Louisiana and Mobile, Alabama, correct?
A. That's what it says, yes.
Q. You don't disagree with that?
A. No. But, as I said, at a certain level.

Page 61:04 to 61:17

Q. Under "INTRODUCTION" it says, The shoreline response was conducted over a wide -- a very wide geographic area, encompassing five states in the United States from Galveston, Texas to Franklin County, Florida, correct?

A. Yes.
Q. And that's accurate, correct?
A. Yes.
Q. And then it goes on in the next paragraph to say, "The SCAT process is a well established and internationally recognized approach to dealing with these issues." You agree with that, correct?

Page 61:19 to 65:03

A. I'm reading these issues first, so I'm not --
Q. (BY MS. KARIS) Sorry, go ahead.
A. Yeah.
Yes.
Q. Do you agree, as stated in the next sentence, that "The objective of SCAT is to determine shoreline cleanup operations that will accelerate the removal and natural weathering of stranded oil so that the ecosystem and public usage can return to pre-spill conditions as soon as possible, using practices that are best for the environment"?
A. Yes, that is clearly the objective of the SCAT.
Q. And that was the objective of the SCAT program that was applied to the Deepwater Horizon oil spill, correct?
A. Yes.
Q. The article that you are a co-author of states what the SCAT mission includes, correct?
A. Yes.
Q. That would include the SCAT mission utilized at the Deepwater Horizon spill, correct?
A. Yes.
Q. The Deepwater Horizon oil spill involved "The systematic documentation of shoreline oiling through time," correct? The first bullet there.
A. Yes.
Q. The Deepwater Horizon spill involved the "Expert assessment of the potential fate and effects of the stranded oil," correct?
A. Yes.
Q. The Deepwater Horizon SCAT program involved the "Development of treatment recommendations and technical advice," correct?
A. Yes.
Q. And it also involved the

"Identification of ecological and cultural resource constraints"?
A. Yes.
Q. It involved the "Provision of support to Operations during treatment implementation," correct?
A. Yes.
Q. And the Deepwater Horizon spill involved the "Creation of a unified and consensus approach from start to finish," correct?
A. That was the mission. It was not always successful.
Q. There were times where there were -- there was disagreement regarding the approach to be applied as part of the SCAT process, correct?
A. Yes.
Q. And it -- finally, it involved the "Provision of ongoing data on response progress," correct?
A. Yes.
Q. And where there was disagreement as to the approach to be applied as part of the SCAT process, the final say and authority rested with the Federal On-Scene Coordinator, correct?
A. Yes.
Q. The article describes various -- the organization and the various functions of the SCAT program and we don't need to go through all of them, but they included program management and leadership, correct?
A. Yes.
Q. They included coordinators, technical advisers, and consultants, correct?
A. Yes.
Q. The role of the coordinators, technical advisers, and consultants was to offer their expertise to help drive the program successfully?

Page 65:06 to 65:19

A. I'm trying to find where you're reading that.
Q. Under "Function."
A. Yeah.
Q. The Technical Advisers/Consultants were at the very heart of the program, providing technical reference, interpretation and support, and ensuring the stakeholders had sound perspective for their consideration, and offering counsel based on many years of

17 experience to help drive the program
18 successfully, correct?
19 A. Yeah.

Page 65:21 to 66:01

00065:21 Q. (BY MS. KARIS) Is that correct?
22 A. Yes.
23 Q. Thank you. SCAT teams were
24 comprised mainly from nationally-recognized
25 experts from the responsible party contractor
00066:01 sources and NOAA; is that correct?

Page 66:03 to 66:07

00066:03 A. Nat- -- I guess I have a hard
04 time with nationally-recognized experts from
05 the responsible party contract. Not every
06 SCAT team leader from -- from BP was a
07 nationally-recognized expert.

Page 66:19 to 66:22

00066:19 Q. (BY MS. KARIS) Okay. Did the
20 teams always have experts with years of
21 experience in technical assessment?
22 A. Not every team, no.

Page 67:16 to 68:13

00067:16 Q. Okay. Are you familiar with the
17 SCAT survey teams?
18 A. We called them field teams, but,
19 yes.
20 Q. Okay. And the purpose or the
21 function of the field teams was to undertake
22 ground surveys based on interagency teams to
23 locate and document shoreline oiling,
24 correct?
25 A. Yes.
00068:01 Q. Each team comprised of a SCAT
02 team lead, a federal representative, and a
03 state representative, correct?
04 A. Those were the minimum members
05 of a team, yes.
06 Q. Okay. So there was at least one
07 representative from BP, one representative
08 from Federal government, and one
09 representative from the various states,
10 correct?
11 A. From the state.
12 Q. The state.
13 A. From the state.

Page 68:18 to 68:20

00068:18 Q. Fair enough. So each field team
19 consisted of a state representative from that
20 state, correct?

Page 68:22 to 69:11

00068:22 A. Each team consisted of a minimum
23 of, you know, a federal -- a BP rep, a
24 federal rep, and a state rep --
25 Q. (BY MS. KARIS) Okay.
00069:01 A. -- for each state.
02 Q. Do you agree that SCAT requires
03 adherence to standard methods of field
04 observation and measurements by calibrated
05 field teams?
06 A. Yes.
07 Q. And that was the approach that
08 was taken in connection with the Deepwater
09 Horizon SCAT program that was put in place,
10 correct?
11 A. Yes.

Page 69:21 to 70:08

00069:21 Q. Okay. Through 2013 -- how about
22 through June of 2013, do you agree that
23 consistency among teams over time was
24 essential and a deliberate effort was made to
25 maintain the same cadre of team leaders
00070:01 throughout the response?
02 A. Yes.
03 Q. The field data from the
04 Deepwater Horizon spill went through rigorous
05 automated and visual checks to ensure data
06 quality, correct?
07 A. Yes. And it -- and it is still
08 going through those.

Page 70:17 to 71:01

00070:17 Q. Well, my first question,
18 independent of where I'm reading it from --
19 A. Yeah.
20 Q. -- is do you agree that a large
21 number of stakeholders relied on the quality
22 and objectiveness of the field data to
23 support decision-making at all levels of the
24 Deepwater Horizon spill's response?
25 A. At all levels of the -- you
00071:01 know, the shoreline cleanup operations, yes.

Page 71:12 to 73:08

00071:12 Q. (BY MS. KARIS) As part of the
13 SCAT process, SCAT teams systematically
14 segmented the Gulf coastline into discrete
15 segments, correct?
16 A. I would not say systematically.
17 They -- in Louisiana particularly where we
18 did not have a shoreline, it was ad hoc and
19 in the field.
20 Q. Okay. And is that typically how
21 a SCAT program is conducted?
22 A. Shoreline, no, because I'm --
23 because there is no system -- there is no
24 usual way to do shoreline segmentation. It
25 all depends on the spill.
00072:01 Q. Okay.
02 A. Some people do it ahead of time.
03 Some people do it in the field. In Louisiana
04 we did it in the field, based on what the
05 SCAT teams segment -- created the segments
06 originally in the field based on their
07 initial survey.
08 Q. And were you satisfied with how
09 the Louisiana segments were divided?
10 A. In general, yes. They were
11 done, you know, carefully and accurately, but
12 there were a lot of issues and Louisiana was
13 such a complex shoreline, that it was
14 constantly changing.
15 Q. Okay. But definitely the
16 intention was to do them careful -- to
17 segment them carefully and accurately,
18 correct?
19 A. Yes.
20 Q. And after the shoreline was
21 segmented carefully and accurately, then
22 there was an evaluation of that segment,
23 correct?
24 A. There was a -- is -- the process
25 of segmentation and -- and documenting of the
00073:01 oiling conditions is a continuous thing.
02 It's not sequential. So they will, you know,
03 survey a shoreline and decide, oh, you know,
04 the shoreline oiling has changed; let's make
05 a new segment here, and then they, you know,
06 go forward. So, yes. But part -- the reason
07 you segment is to collect data within that
08 segment on the oiling zones.

Page 73:25 to 74:06

00073:25 Q. (BY MS. KARIS) Okay. And so
00074:01 during 2010 between up to 15 and 20 SCAT
02 teams were deployed each day to conduct

shoreline segment -- segments -- I'm sorry, shoreline surveys, correct?
A. Across the entire, you know, four states, yes.

Page 74:23 to 75:16

Q. (BY MS. KARIS) Dr. Michel, we were speaking of the SCAT program and the surveys that were conducted. And are -- I'm going to ask you now to turn to the document behind Tab 8. Can you mark that, please, as Exhibit 13006?
A. Yes.
Q. This is a document titled "Shoreline Treatment during the Deepwater Horizon-Macondo Response," dated February 4th of 2011, correct?
A. Yes.
Q. And you were one of the authors of this article, correct?
A. Yes, I was a co-author, yes.
Q. Right. And so you reviewed this and put your name on the article that was published here, correct?
A. Yes.

Page 76:05 to 76:08

Q. Okay. And this paper is really intended to discuss the shoreline treatment specific to the Deepwater Horizon Macondo response, correct?

Page 76:10 to 76:23

Q. (BY MS. KARIS) It's about SCAT at Macondo, correct?
A. Yes, it's SCAT at con- -- yes, the shoreline treatment process, yes.
Q. Okay. And if you go to the bottom of Page 3 where the SCAT program summary is listed, it -- in the second paragraph there it says, "A key element of the SCAT survey program was the systematic nature of the surveys and the creation of a consistent data and knowledge base," correct?
A. That was the goal, yes.
Q. Well, you're publishing this in 2011, correct?

Page 76:25 to 78:07

00076:25 A. Yeah, the con- -- the conference
00077:01 was held in -- in 2011, yes.
02 Q. (BY MS. KARIS) Well, and it was
03 published in 2011?
04 A. Yes.
05 Q. Under the second paragraph from
06 the bottom you were talking about how many
07 teams would go out to conduct these
08 systematic surveys. And would you agree
09 there that the first ground survey was
10 conducted on May 4th of 2010?
11 A. Yes.
12 Q. "And, typically, between 15 and
13 20 SCAT teams were deployed each day,"
14 correct?
15 A. Eventually, you know, over the
16 period, you know, 2 -- 2010. But, you know,
17 on -- on the 1st of May --
18 Q. Sure.
19 A. -- I mean, the 4th of May there
20 were only one or two or three.
21 Q. Fair enough. It started on
22 May 4th but it was built up, and then in the
23 2010 time period, as this article says,
24 typically between 15 and 20 SCAT teams were
25 deployed each day?
00078:01 A. That's correct.
02 Q. Okay. And then "By the end of
03 2010 the SCAT survey data show that the total
04 length of shoreline oiled at some point in
05 time after April was 1,053 miles," correct?
06 A. That was the miles as of the
07 time that the article was written, yes.

Page 78:17 to 78:21

00078:17 Q. (BY MS. KARIS) Okay. The SCAT
18 data that was collected by these surveys --
19 the survey teams was the most reliable source
20 of information about the extent of oiling
21 from the Deepwater Horizon spill, correct?

Page 78:23 to 79:07

00078:23 A. You know, I don't know of other
24 surveys that might have, you know, had, you
25 know, different surveys -- different kinds of
00079:01 surveys to document oiling. But the SCAT
02 program collected oil, you know, on the
03 shorelines in a way that support operations.
04 So it was as accurate as can be under those
05 conditions of doing shoreline surveys. So
06 what -- you used the word reliable?
07 Q. (BY MS. KARIS) Yes.

Page 79:09 to 79:16

00079:09 Q. It was the most reliable source
10 of information --
11 A. To support.
12 Q. -- that you're aware of --
13 A. Yeah.
14 Q. -- to support the cleanup
15 efforts and determine the extent of oiling,
16 correct?

Page 79:18 to 79:24

00079:18 A. It was the most reliable to
19 support the claim -- the decision-making for
20 shoreline treatment options.
21 Q. (BY MS. KARIS) Okay. It was
22 the most reliable information that you're
23 aware of to determine the extent of oiling,
24 correct?

Page 80:01 to 80:06

00080:01 A. You know, I -- I guess I -- I'm
02 not sure if it's the -- the most reliable,
03 so, yeah.
04 Q. (BY MS. KARIS) Are you aware of
05 any more reliable information to determine
06 the extent of oiling?

Page 80:08 to 81:20

00080:08 A. As -- as the NOAA SCAT
09 coordinator and just earlier this year the
10 Federal On-Scene Coordinator asked the SCAT
11 program to go out and re-survey shoreline
12 segments that had been observed as being
13 oiled by other groups, and so, you know,
14 these were ones that we had -- that SCAT
15 had -- had either -- had never surveyed. And
16 so other teams had gone out and surveyed them
17 and found oiling. So, you know, this is an
18 emergency response. So, you know, it's --
19 I'm not sure I can compare -- you know, all I
20 know is the SCAT data.
21 Q. (BY MS. KARIS) Okay. So
22 SCAT --
23 A. There might be other --
24 Q. I'm sorry. For SCAT data that
25 was collected for segments that were
00081:01 surveyed, not those that weren't, for those
02 that were surveyed, would you agree that the
03 SCAT survey data is the most reliable source

of information regarding the extent of oiling?
A. The SCAT data document the -- the extent of oiling that they saw. And so I guess I'm hung up on the word "reliable," because, you know, SCAT is -- the objective is to support decision-making. They're not trying to -- to quantify it in very high detail, for example. I mean, they -- they're lumpers. You know, they average over areas. You know, this is an operationally -- their data they collect supports operations. So it's -- it's the most appropriate for -- to support operations.
Q. And the operations are cleanup efforts, right?
A. Yes.

Page 81:23 to 83:18

Q. It was the most important data collected to support the cleanup effort; would you agree with that?
A. 100 percent, yes.
Q. Not only was it the most important to support cleanup efforts, it was the information you relied on, correct?
A. In -- in order to determine the -- you know, generate -- drawing treatment recommendations within the SCAT program, yes.
Q. So in order for you, based on all your years of experience, to determine treatment recommendations within the SCAT program, the data you relied on was the data that the SCAT surveyors collected as part of the SCAT process, correct?
A. The SCAT teams collected the data. Yes, I relied on only those data for determining, you know, whether or not the segment met cleanup end points and -- and their recommendations. Not just the data, but, you know, the data includes the SCAT team recommendations about --
Q. Sure.
A. -- you know, whether they recommend treatment or not.
Q. So the data and the recommendations that you relied on was that that was collected through the SCAT survey process, correct?
A. That's correct.
Q. And you agree that that is the appropriate data to rely on in making recommendations?

A. Yes. You know, the SCAT teams are composed of all members of Unified Command, they are in the field, they see it. You know, I did not conduct a single SCAT survey. I have no firsthand knowledge of, you know, the data collected in the field. I rely on them to collect the data, fill out the forms, make their recommendations, as a uni- -- as -- and to -- and to do that, you know, best they can in a consensus-building process.

Page 84:05 to 84:06

Q. The SCAT survey teams made efforts, though, to locate that buried oil --

Page 84:08 to 84:09

Q. (BY MS. KARIS) -- by doing things including digging pits?

Page 84:11 to 85:04

Q. (BY MS. KARIS) Correct?
A. The SCAT teams made a -- an adequate effort to try to document in their normal surveys, you know, buried oil; but the oil was buried very deeply. It was beyond the -- the depths at which they could dig -- find the oil digging pits. And so eventually we had to actually get -- set up a program where we had mechanical augers go in and we did systematic augers, which was sort of, you know, part -- SCAT people described the surveying, but it wasn't a SCAT program. It was an augering effort.
Q. Okay. And so we'll talk about augering, but so that was a program designed to dig deeper and locate more oil, correct?
A. Yes.
Q. And you agree that was an effective program, correct?

Page 85:06 to 86:15

A. You know, we kept finding oil buried until, you know, even, you know, the -- in November of 2013. So it was partially effective.
Q. (BY MS. KARIS) Okay. It was effective in trying to dig deeper in trying to locate oil, correct?

A. Well, it did -- it did dig deeper. Whether it was effective, because essentially they -- we only augered down to 36 inches originally, and we found oil much deeper than that. So I guess it was partially effective.
Q. Okay. Had you ever utilized augering in connection with other oil spills?
A. Good question. I do -- not on the scale that was conducted here. I'm sure that there has been spills where people used -- had augers here and there, but not at this scale.
Q. What was the scale of augering that was applied at the Deepwater Horizon spill in order to locate buried oil?
A. There are -- you know, SCAT assisted with tens of thousands of auger holes and operations conducted, more tens of thousands; and so it was a large effort to attempt to try to find the buried oil.
Q. Over 30,000 pits were dug or augered, correct?
A. At least that many, yes.
Q. More than 105,000 miles were flown as part of the shoreline aerial recognizance surveys in Louisiana in May of 2010 alone, correct?

Page 86:17 to 86:25

A. Someone else made that calculation. I never verified it, but that's --
Q. (BY MS. KARIS) You don't have any information to the contrary?
A. I don't have any information to the contrary.
Q. In fact, you published a paper that has that information in it, correct?

Page 87:02 to 90:22

A. I was a co-author on that paper.
Q. (BY MS. KARIS) You were the co-author on a paper that published that data and information, correct?
A. Yes.
Q. SCAT teams completed more than 1,700 field days, not including aerial surveys, monitoring, and other field activities, correct?
A. You know, over what period, and so you --
Q. The 2010 SCAT program.

A. You know, I'm not sure. Again, some of the co-authors provided those information. That sounds, you know -- I have no other information to contradict that. It's probably right, but I just don't want to say I have proof of knowledge how many days they were out in the field.
Q. Okay, fair enough, Dr. Michel. You would agree that the SCAT teams completed an extensive number of surveys and worked an extensive number of what are called field days, correct?
00088:01 A. Yes, and I think there is -- that's a moving number, but, yes, it was extensive and -- and continued to be extensive, you know, throughout the SCAT program.
Q. And when we say "a field day," what is that?
A. You know, that's a good question, because a field day in Louisiana is the teams usually depart around 5:00 or 6:00 in the morning. It takes them a couple hours to get to the site. They got to get in a boat. They've got to get to the shoreline. So a lot of times a field day, you know, lasted from 5 o'clock in the morning to, you know, 6:00 or 7:00 o'clock -- 5:00 o'clock at night, but they were in the field, you know, walking the shoreline, you know, perhaps sometimes just for only a few hours because of the logistics to get to and from the shoreline.
Q. They may have been walking only a couple hours -- a few hours, as you described, but they were working long, hard hours --
00089:01 A. Oh --
Q. -- to try and find the oil, correct?
A. That -- that was their job, was to go out and do field surveys to document the oiling conditions, yes.
Q. And you didn't question that they were actually doing their job and being effective at doing their job, correct?
A. You know, under the -- God, the tough conditions they operated, they did a great job.
Q. Okay. Did Unified Command go to great lengths to locate buried oil during the shoreline response?
A. Eventually they made a -- a great effort to do that.
Q. What did that great effort include --

A. It was --
Q. -- to locate buried oil?
A. The large number of auger holes done in a, you know, systematic grid to try to find the oi- -- you know, the larger patches of the buried oil. You know, the -- regard -- unless you dug up the entire beach, you'd never be able to find all the buried oil, but they were looking for the larger accumulations that would require removal. So, you know, over time it be- -- I remember one of the operations guys said that, you know, after tropical storm this, tropical storm that, or hurricane this and that they just kept getting oil showed up; and so they just realized they had to go try to find those areas and finally get them done and that was 2013.
Q. And they kept going back and they kept going, cleaning up that oil when it was found, correct?
A. Yes, they -- their responsibility as the RP was to go out and recover oil at the prescribed frequencies in the shoreline treatment recommendations.
Q. And when there was found oil, as I said, they did go back and identify, locate, and clean up that oil, correct?

Page 90:24 to 91:12

A. You know, the shoreline treatment recommendations had, you know, operational teams go out on a specified frequency. Sometimes it was every day, sometimes it was once a week, sometimes it was once every two weeks. They would comply with those -- you know, the shoreline treatment recommendation is the operation permit to work. You know, they had to comply with that weather and safety considerations, you know, taking that into consideration. So it was their job to go out and, you know, conduct the shoreline treatment as agreed to by the Unified Command.

Page 92:15 to 93:17

Q. Okay. So as more information was becoming known, did BP make an effort to provide technical expertise in order to help locate that buried oil and then clean it up?
A. You know, BP brought in -- some of the SCAT team leaders were good geomorphologists and -- and had, you know,

been in the field a long time. So they were brought in to identify, look at the SCAT beach -- you know, SCAT-collected topographic beach profiles. They looked at places where the shoreline changed and where the shoreline change had -- had not originally eroded back to where the oil was originally deposited, they thought, and they made maps that they thought had a higher or lower probability of buried oil and those areas were targeted.

Q. Okay. The SCAT survey consists of teams walking the shoreline or transiting close to shore in order to document oiling conditions using standard terms for oil character, for thickness, for percent distribution, width, and length of the oil bands, as well as tidal zones of where the oil bands are observed, correct?

A. Yes.

And I guess I would like to make -- you know, yes, for visible oil.

Page 93:22 to 94:09

Q. And then for buried oil we talked about the buried oil project; that's what we were referring to previously about digging in order to locate buried oil, correct?

A. The buried oil project was one specific project. There were many other similar type of augering efforts to look for subsurface oil. But, you know, you can still see subsurface oil. You still detect it visibly. You just have to use a different technique to -- to bring the oil, you know, to the surface.

Page 94:12 to 96:19

Q. Now, the SCAT program consisted of four stages, correct?

A. The -- the shoreline cleanup plan -- I -- let me see what we -- let me check to see what we called it.

Q. Okay.

A. We called it the shoreline response plan, yes.

Q. The shoreline response plan --

A. Yeah.

Q. -- consisted of four stages?

A. Yes.

Q. The first stage was what?

A. Well, actually, we combined Stage I and II together, but Stage I was --

Q. Leaving aside the paper.
A. Yeah.
Q. Just in general --
A. Yeah, yeah.
Q. -- Stage I was what?
A. You know, Stage I was done so -- and II were done together. So there -- there were, like, two separate stages. They were together, but Stage I was the -- was the nearshore on-water recovery, which was conducted while the oil was still being discharged from the -- from the well and while the oil was still coming ashore.
Q. And what was the nearshore on-water recovery effort? What was that?
A. It was shallow water skimming, essentially, and booming.
Q. Okay. So it included skimming, it included booming, correct?
A. Skimming, booming, putting out sorbents, sort of all on-water recovery operations. There was probably vacuuming, sorbent deployment, containment boom, you know, those similar kind of on-water, nearshore response techniques.
Q. Okay. If you turn to Tab 5 -- I'm sorry, I didn't get the exhibit number. What number does that have down there?
A. 13004.
Q. Thank you. You begin the introduction of your article that you're the lead author on, it say, "The fate of oil included direct recovery from the wellhead, containment, offshore skimming, controlled in-situ burning, natural and chemical dispersion (both sea and on the surface), and other pathways, including stranding on the shoreline," correct?
A. Yes.
Q. Okay. Would you agree that there was an extensive effort undertaken to try to prevent oil from reaching the Gulf shoreline?

Page 96:21 to 97:04

A. You know, as the -- as the SCAT coordinator, you know, we -- we were very much aware that there was a very big effort using all those techniques, skimming, booming, burning, dispersion to, you know, minimize the amount of oil that came ashore, yes.
Q. (BY MS. KARIS) You've described that as a phenomenal effort, correct?

Page 97:06 to 98:18

00097:06 A. I would say that considering the
07 size of the spill and the resources needed to
08 throw -- to try to do all that, it was a
09 phenomenal response, yes.
10 Q. (BY MS. KARIS) You told me what
11 Stage I consisted of. What was Stage II of
12 the SCAT program?
13 A. Stage II was essentially the --
14 the removal of gross oil on the shoreline.
15 Q. And can you describe what the
16 Stage II process for removal of gross oil on
17 the shoreline entailed?
18 A. Manual removal of, you know, oil
19 from the surface.
20 Q. And what were the techniques
21 that were used for that?
22 A. Manual methods.
23 Q. Can you tell the Judge what
24 manual methods include, to somebody --
25 A. Okay.
00098:01 Q. -- who's not familiar with
02 shoreline cleanup?
03 A. Okay. Okay. Let me see if I
04 can remember what this... so they would be,
05 you know, hand tools, vacuum systems.
06 Q. Okay. The purpose of Stage I
07 and Stage II -- I'm sorry. The use of the
08 surveys for Stage I and Stage II was to allow
09 for rapid and focused response to locate oil
10 and -- and immediately remove it, correct?
11 A. Yes, Stage I and II was -- you
12 know, were not comprehensive surveys.
13 They -- because the oil was coming ashore,
14 you know, continuously over different areas
15 and there was still a risk of re-oiling. And
16 so these were to look for areas where
17 there -- especially where oil could be
18 remobilized.

Page 99:08 to 100:25

00099:08 Q. Thank you. Let's talk about
09 Stage III of the shoreline response effort.
10 What did that consist of?
11 A. In Stage III SCAT teams were
12 directed to go out and do more complete
13 surveys, to do more detailed documentation of
14 the oiling conditions. And then we were --
15 used those data to develop segment-specific
16 or groups of segments shoreline treatment
17 recommendations and -- but those treatment
18 recommendations, they included a

no-further-treatment guideline that would tell operations when they were allowed to consider treatment over and call for SCAT to inspect against those no-further-treatment guidelines.
Q. When you say "to do more detailed documentation of the oiling condition," what do you mean? What is the more detailed documentation that you're referring to there?
A. They would do a more comprehensive SCAT survey, dig pits. We started having surveys trying to be done at periods of time where they could see the entire intertidal zone so they could -- but still, you know, we had a certain minimal tidal level that they were allowed to do surveys so they could see the entire intertidal zone. So whereas before, you know, we went out whenever we could, the teams went out whenever they could because they were just looking for gross oil.
Q. Okay. Stage III lasted from September of 2010 to March of 2011, correct?
A. That was the period of Stage III surveys, yes.
Q. Okay. Stage III began once significant quantities of floating oil no longer remained on the surface -- on the sea surface, correct?
A. That was the trigger for the start of the Stage III shoreline process.

Page 101:23 to 107:22

Q. Okay. As part of Stage III, acceptable and proven cleanup actions in the affected habitats -- sand beaches, marshes, and manmade structures -- were identified by groups of representatives from the responsible party, from federal, from state, and local jurisdictions to meet cleanup goals, correct?
A. Yes, we formed sub-teams with -- under the Stage III group to identify for each of those habitats through discussions about what were the appropriate cleanup methods that they would approve that we could then incorporate into shoreline treatment rec- -- recommendations.
Q. And when you say what were the appropriate methods that could be approved, those methods were acceptable and proven cleanup actions, correct?
A. The techniques that the -- the

work groups, you know, agreed that could be used were, you know, based on experience and as being these were appropriate and -- and effective techniques, you know, when properly implemented under the right conditions.

Q. They were intended to be effective techniques when properly implemented, as you said, under the right conditions, correct?

A. That was the goal.

Q. Now, you referenced technical working groups.

A. Yes.

Q. What is a technical working group?

A. Within the planning section of the environmental unit we will stand up groups to bring various -- you know, groups on various topics to make recommendations to the response. And in this case we were writing the Stage III shoreline response plan and we wanted to have habitat-specific guidelines on cleanup methods and end points and so we brought folks from all the Unified Command, you know, stakeholders so that they could all be part of the process and we -- you know, you sit down, have the discussion, you discuss cleanup methods, what's appropriate for our -- you know, for this habitat.

In Louisiana in particular, Louisiana was very concerned about disturbing the sand beaches, not just the marshes, but the sand beaches because they are a very sensitive resource in Louisiana. And so it wasn't just a, you know, okay, let's go clean up the beaches. We had to talk about the guidelines, the constraints, what we call the to-dos and the to-don'ts, what -- what can they do and what shouldn't they do in terms of shoreline cleanup, for example, and salt marshes.

Q. Okay. And did you find having technical working groups to be an effective way to address the response activity?

A. Yes, technical working groups are the best way to get all stakeholder involvement, get them participating in there and so that they are -- you know, they build the program. It's theirs. They have ownership and -- and hopefully that will make it more successful.

Q. And that was the program that was utilized for the Deepwater Horizon oil spill, correct?

A. Yes.

Q. We spoke previously about the surveys that were conducted in order to determine whether oiling existed so that a proper recommendation could be put in place for cleanup. Do you recall that?
A. Yes.
Q. Okay. Now, I want to talk a little bit about the scope or extent of surveys that were conducted so that recommendations could be put in place if oiling was observed. And if you would go to Tab 5, Exhibit 13004, I'm going to ask you about some numbers. At Page 4, first column there, "SCAT data on oiling characteristics were used routinely to generate maps and tubular data on degree of oiling by habitat over time," correct?
A. The -- the -- the SCAT maps that we talked about here were the degree of surface oiling --
Q. Okay.
A. -- using the standard criteria of length, width, and thickness.
Q. Okay. And so --
A. I'm sorry, width, percent cover, and thickness.
Q. And -- and this information was collected, if you will, as a result of these surveys?
A. Yes.
Q. Okay. Oiling degrees were categorized, then, into heavy, moderate, light, very light, and trace, based on width of oiling bands on the shoreline, percent of oil covered, and then oil thickness, using a two-step process, correct?
A. Yes, that's the -- the -- that was part of the Stage III response plan, that's -- process and those definitions were all incorporated into the plan.
Q. Okay. And did those definitions of what is heavy, what is moderate, what is light, what is very light, and what is trace exist at the time of the Deepwater Horizon spill?
A. No, those are generated unique for every spill.
Q. Okay. And so those were specific to this spill; is that correct?
A. Yes, they always are --
Q. Okay.
A. -- specific to each spill.
Q. Fair enough. And so some of the oil that was observed fell into the heavy oiling, based on classification of surveys, correct?

A. Yes.
Q. Some fell into what is called moderate; is that correct?
A. Yes.
Q. Some oiling that was observed fell into the category of light, correct?
A. Yes.
Q. Some fell into very light, correct?
A. Yes.
Q. And then some fell into trace, correct?
A. Yes.
Q. And then for some of the areas that were surveyed there was no oil observed at all, correct?
A. Yes, un- -- you know, no visible oil, so we call that no oil observed.

Page 108:06 to 108:17

Q. Okay. Is it correct that 7,058 kilometers of shoreline were surveyed?
A. As of the date of the paper.
Q. I'm sorry, and the date of the paper is June 2013, to be fair here.
A. Well, exactly. You know, we submitted the paper in November 2012.
Q. Okay.
A. And -- and it was accepted in -- in April and so I -- I don't remember -- I'm sure we say somewhere here as of what date those numbers were determined on.

Page 108:21 to 109:06

Q. Okay. Approximately 7,058 kilometers of shoreline were surveyed, correct?
A. Yes.
Q. 1,773 kilometers were documented as having been oiled across the affected area, correct?
A. As of the time of this paper.
Q. Okay. And so of the 7,058 kilometers surveyed, only 1,773 kilometers had any visible oil, correct?

Page 109:08 to 109:15

A. Of the over 7,000 kilometers that SCAT surveyed, you know, they observed oil on, you know, 1,773 kilometers.
Q. (BY MS. KARIS) Okay. "Of the

1,773 kilometers of shoreline that was ever observed as having been oiled, after one year 47.8% or 847 kilometers still had some degree of oiling," correct?

Page 109:17 to 110:01

00109:17 A. Okay. So at the time of this paper, you know, the -- the SCAT data, you know, showed that 847 kilometers still had some degree of oiling after one year.
Q. (BY MS. KARIS) Okay. So of the 1,773 kilometers of shoreline that were -- that were observed as having been oiled as of the time of this paper, after one year only 47.8 percent had some degree of oiling, correct?

Page 110:03 to 110:24

00110:03 A. It is correct that 47.8 percent of that amount for that -- you know, of the oil that had originally been found was documented as still present. So there is -- there is con- -- you know, there is some subtleties there, that, you know, SCAT may not have -- you know, this is not an instan- -- instantaneous survey after one year. You know, it's -- it was as of the last survey that SCAT did.
Q. (BY MS. KARIS) Well --
A. It was the last data point with -- after one year, you know, the database showed that there was oiling still on, you know, 847 kilometers of shoreline, as far as SCAT knew.
Q. And to be clear, the surveys, it wasn't once you survey a particular piece of shoreline, you're done, you never go back, correct?
A. Right, but you only -- but you might -- might only go back one time.

Page 111:02 to 111:21

00111:02 Q. But you might go back multiple times, correct?
A. That's right. So -- but I guess the point I want to make sure that everybody understands, especially the Judge, is that the SCAT data are, you know, as 00 the best source we have for oiling conditions, but they're not -- they're not synoptic. It's not -- it's not like we went out and surveyed

everything one time real quickly, it represents on the 1st of May when these data were collected, that's not what the oiling conditions were.
Q. Understood. This was over a period of time and this was a survey -- these were surveys that were conducted for the very purpose of trying to identify where is there oil in order to identify a response plan, if needed, correct?
A. That's correct.

Page 112:01 to 114:24

Q. And then to the extent there is a resurveying, it's for the purpose of identifying whether previously you found no oil, but now it might exist, correct?
A. That's correct.
Q. And, likewise, it's to identify whether previously there was oil and now there no longer is oiling, correct?
A. As of that survey, yes.
Q. Right. And we'll talk about the various ways in which there may be no oil. One way, of course, would include cleanup efforts, correct?
A. Yes.
Q. There are other, what we call, natural ways in which the oil may no longer exist, correct?
A. Correct.
Q. And can you tell us what some of those natural ways there are that may cause oil to no longer be there?
A. The oil can be removed by physical processes, such as wave action or current action, by washing it off. The oil can weather to the point that it becomes, you know, dry and -- especially on vegetation it just, you know, flakes off. Over time most salt marshes, the -- it has an annual aboveground vegetation structure. The -- the grass in the win- -- dies in the wintertime and then new growth shows up in the -- in the spring, and that oiled vegetation that was there gets sloughed off and then it gets transported into the estuary. So it's no longer on the shoreline. It can become buried so you can't see it, and if you dig around, you still may not be able to see it.
Q. But if you dig around, you might be able to find it with the augering and the holes, tens of thousands of holes, correct?
A. Yeah, but all that augering

didn't happen until much later.
Q. Okay.
A. Yeah.
Q. But you may find it later?
A. You may find it later, correct.
Q. Correct?
A. Yeah.
Q. Okay.
A. But, remember, these --
Q. What other natural ways?
A. But, remember, these shoreline oiling numbers are -- reflect only surface oiling.
Q. I understand.
A. So -- and so, you know, it could get buried, it can get -- waves can wash it off the shoreline. It can break up into little pieces that you can't not see anymore.
Q. Okay. Are there any other natural ways in which it may no longer be there --
A. Yeah, mi- --
Q. -- that you can think of?
A. There is microbial degradation, there is the --
Q. What is microbial degradation?
A. It is the process by which naturally occurring microbes utilize the oil as a carbon source and break it into smaller and smaller pieces that they can use to -- for metabolism.
Q. Okay. And was there microbial degradation at the Macondo site?

Page 115:09 to 115:24

A. (Continuing) So I guess -- I'm assuming you're asking was there microbial degradation on the shore -- oil that stranded on the shoreline?
Q. (BY MS. KARIS) Yes.
A. Yes, I'm sure that there was some microbial degradation.
Q. Okay. Now, as a result of either these natural processes, as you've identified, or through cleanup efforts, your report goes on to say "heavy to moderately oiled shorelines had declined by 87% in one year and 96% in two years, compared to maximum oiling conditions," correct?
A. Yes, those are the data from the SCAT database.

Page 116:08 to 119:19

00116:08 Q. Okay, fair point. Sorry, I
09 should have made that transition.
10 In the marshes much of the oil
11 remaining after two years of the spill was
12 located in areas where additional cleanup or
13 treatment would not provide a net
14 environmental benefit, correct? Or where the
15 shoreline cleanup end points had been met?
16 A. Yes, much of the residual oil in
17 the areas after two years was in -- was
18 getting smaller and less thick and vegetation
19 was growing through it. So based on the
20 information from the SCAT teams there was the
21 sense that, you know, further treatment might
22 have -- you know, be more damaging than
23 leaving the oil to weather. But that wasn't
24 always the case, you know, much, but not all.
25 Q. Okay. And that was what was
00117:01 reflected in the shoreline treatment plan,
02 those end points?
03 A. Yeah, the end points for marshes
04 were, you know, no longer -- no thicker than
05 1 centimeter, does not slough off on contact,
06 does not generate sheens, et cetera.
07 Q. You made the point that this is
08 for marshes, and you're correct, I skipped
09 that 970 -- of the 976 kilometers of marshes
10 that were oiled, shoreline treatment was
11 allowed along 7 -- along 71 kilometers,
12 correct?
13 A. The shoreline treatment
14 recommendations, you know, allowed cleanup
15 along a total of 71 kilometers or -- or
16 8.9 percent of the -- of the marsh oiled
17 shoreline.
18 Q. Okay. And with respect to the
19 remaining shoreline -- marshes, excuse me,
20 that were oiled, a decision was made
21 consistent with the Shoreline Clean-Up
22 Completion Plan that no further cleanup
23 would -- was warranted, correct?
24 A. Yes, we know that marshes are
25 very sensitive cleanup activities and -- and
00118:01 if there was -- showed evidence of recovery
02 and if the oil was below these cleanup --
03 shoreline cleanup end points, then the team
04 would hardly ever recommend treatment.
05 Q. Because it would not provide a
06 net environmental benefit?
07 A. That's correct.
08 Q. And "natural attenuation was
09 often then the recommended response action to
10 avoid further damage to the marshes,"
11 correct?
12 A. That is part of the net
13 environmental benefit is to allow natural

weathering and removal processes, yes.
Q. Now, with respect to the shoreline and oiled shorelines, where appropriate recommended cleanup methods were provided, correct?
A. Yes. You know, in the SCAT program we generated shoreline treatment recommendations for specific areas and techniques and things that they were supposed to do and things that they were not supposed to do, areas they were to avoid, and the requirement for monitor -- especially in
00119:01 marshes, we've always had what we call a marsh monitor work right there with operations to make sure, because, you know, people -- a cleanup worker standing on a walking board with a shovel or rake, you know, needs a lot of direction.
Q. "Of the 900 kilometers of beaches that were oiled, some type of shoreline treatment was conducted on 660 kilometers or 73.3% of the oiled beaches," correct?
A. Across the AOR, yes.
Q. Many of the beaches were high-use or amenity beaches where the cleanup goal was no visible oil above background levels or as low as reasonably practical, considering the allowed treatment method and net environmental benefits, correct?
A. Yes, got that right that time.

Page 121:19 to 122:21

00121:19 Q. Are you familiar with the concept of set-asides?
A. Oh, yes, the set-asides, but --
Q. Are you including the set-asides there or not?
A. No, because they were treated.
Q. Okay. What are the exceptions,
00122:01 then, with respect to Louisiana that you were referencing?
A. The Chandeleur Islands that were part of the Breton National Wildlife Refuge, they were moved out by exception.
Q. Do you know what the reason was that they were moved out?
A. Yes, the -- I thought we discussed that earlier, but maybe not. The Fish and Wildlife Service decided that they -- you know, this is a very difficult area to access. They accompanied the teams when they went out and did the cleanup in 2011, I think. They were there. They

observed the cleanup. They determined it was adequate. And they then decided that they -- we did not need to have anybody else come out and look at this very difficult area, to get access to, very sensitive. And so they said as the land manager we're -- we would like for them to be moved out of the response.

Page 123:20 to 125:17

00123:20 Q. What are you referring to when you say "under active response"?
A. That is the overall response that was set up, you know, initially from the -- the beginning of the response where there is this, you know -- the active
00124:01 response that is managed by the Unified Command, the BP oil spill Unified Command. And then it goes into this what we call middle R, which is when there is oil observed, they call the NRC, they report oil, they decide whose oil it is, and then whoever cleans -- whoever's oil it is, they clean it up. When we stand down operations to do normal inspections, that's -- to me that's the end of the response.
Q. When you stand down operations --
A. Yeah, and you move the segment out of the response, you know, through -- it meets -- it goes through the cleanup inspection process and whatever at some point in time the FOSC signs and they determine that it's removal actions deemed complete by whatever process and it's out of the response and there is no longer an active cleanup.
Q. Okay. Are you familiar with a report called OSAT-2?
A. Yes.
Q. And did you review and sign off on that report?
00125:01 A. I did not.
Q. Okay. But you've -- you have read that report?
A. I've read parts of it.
Q. And you're familiar -- do you know who published the OSAT-2 report?
A. Who published -- it was written for the Coast Guard FOSC, so...
Q. Okay. Are you familiar with the efforts undertaken as part of the OSAT-2 report?
A. In a casual way, yes.
Q. Did you have any role or involvement in conducting OSAT-2?

A. I did not.
Q. But you did look at the results of OSAT-2?

Page 125:19 to 126:10

A. I read, you know, parts of the report.
Q. (BY MS. KARIS) Okay. Do you know who Adriana --
A. Bejarano.
Q. -- Bejarano is?
A. Yes.
Q. She is -- who is she?
A. She is an employee of my company, Research Planning, and she's an aquatic toxicologist, a Ph.D.
Q. So she is an employee of Research Planning, correct, that's your company?
A. Yes.
Q. Was she on the OSAT-2 team?
A. Yes.

Page 126:14 to 126:17

Q. Did you consider her to be qualified and competent to perform her responsibilities in connection with the OSAT-2 report?

Page 126:19 to 127:01

A. She is a very competent aquatic toxicologist. I know that there were many issues with her work on the OSAT-2.
Q. (BY MS. KARIS) She was a member of that team that published that report, correct?
A. She wrote parts of the report, yes.

Page 128:14 to 129:25

Q. Okay. And so the report at least here -- there is a report titled "SUMMARY REPORT FOR FATE AND EFFECTS OF REMNANT OIL IN THE BEACH ENVIRONMENT," correct?
A. That's the title of the OSAT-2 report.
Q. Okay. And if you look -- well, we didn't give this an exhibit. I know it

was previously marked, but I don't know what it was. So let's mark it 130 -- does it have a number on there? No.
A. No, mine does not.
Q. 13008.
A. (Witness complies.)
Q. If you'll turn to the first page behind the cover, it's a memorandum from Captain Stroh of the Coast Guard of the United States as the Federal On-Scene Coordinator. Have you seen this letter previously?
A. I'm sure I have.
Q. Okay. He says, as the Federal corn -- Federal On-Scene Coordinator I chartered the Operational Science Advisory Team (OSAT-2) as a small, ad hoc group of agency representatives whose skill sets are tailored to the specific concerns of the Deepwater Horizon MC252 spill of national significance response. Their missions were to inform the FOSC in a timely manner with respect to the fate, degradation, and weathering and effects, toxicity of oil residue from -- residues remaining on, under, or near the shoreline and create a decision tool to guide applicability of future oil residue removal actions, correct?

Page 130:19 to 131:01

Q. (BY MS. KARIS) Dr. Michel, let me ask you this: In executing your responsibilities as the coordinator for SCAT and as the president of Research -- I'm sorry, I forgot the name of your company there -- Research Planning, Inc., did you at any time review the OSAT-2 report?
A. I read the report.

Page 131:04 to 131:12

Q. Okay. And did you review Captain Stroh's cover letter here stating what the purpose was for which he commissioned the OSAT-2 work?
A. I read the report and read the cover letter, yes.
Q. Thank you. And you were part of the team that was working on issues relating to cleanup of shoreline, correct?

Page 131:14 to 131:22

00131:14 A. You know, I was the NOAA SCAT
15 coordinator, but I must admit, I, you know,
16 did -- never used any of these results in
17 my -- any of my work.
18 Q. (BY MS. KARIS) That's fine.
19 That can be your testimony, but my question
20 was whether you were part of the team that
21 was working on issues relating to shoreline
22 cleanup?

Page 131:24 to 133:01

00131:24 A. You know, I was -- I was the
25 SCAT coordinator. We were writing STRs. We
00132:01 were inspecting against the shoreline cleanup
02 plan and everything else. So, you know, I
03 had a job. My role and responsibility was to
04 follow the plan, yes.
05 Q. (BY MS. KARIS) And your -- part
06 of your responsibility was to write the
07 recommendations, STRs, shoreline treatment
08 recommendations for how to clean oiled
09 shoreline and marshes, correct?
10 A. Sand beaches and marshes, yes.
11 Q. Sand beaches and marshes,
12 correct?
13 A. Yes.
14 Q. And were you aware that the
15 Coast Guard, the FOSC, the ultimate authority
16 as part of the cleanup effort here had
17 commissioned some work in order to determine
18 in a timely manner the fate and effects of
19 the oil under or near the shoreline to create
20 a tool for the applicability of future
21 residue removal operations?
22 A. That was their mission.
23 Q. And were you aware that the
24 Coast Guard, the FOSC of the Coast Guard had
25 commissioned this work for that very purpose?
00133:01 A. I knew about it.

Page 134:09 to 134:13

00134:09 Q. Right. And you understood at
10 the time that the report was published, that
11 that was put out by the ultimate authority
12 with respect to the cleanup efforts, the
13 FOSC, correct?

Page 134:15 to 135:24

00134:15 A. This re- -- this re- -- this
16 report was published by the FOSC, yes.
17 Q. (BY MS. KARIS) Thank you. Now,

if you look at Page 1 -- I'm sorry, before we go to Page 1, Captain Stroh's letter here, which precedes the OSAT-2 report it says, "While the motivation for the study centered on wildlife habitat (non-amenity) beaches, the results of the OSAT-2 report are applicable for all oiled sandy beach environments," correct?

00135:01 A. You are reading from the report. You are reading correctly.

Q. Okay. And did you understand that OSAT-2, according to the FOSC, the results were applicable for all oiled sandy beach environments which included ones that you were the coordinator for?

A. It was a report put out by the FOSC, yes.

Q. Okay. And did you understand that the results were applicable for oiled sandy beach environments that you were acting as the coordinator for NOAA for?

A. It is a -- it was a report that had information from multiple sources that were applicable. I mean, this had no guidance. This report had no influence.

Q. I understand you're telling me it had no influence, but were you aware that the results of the report were intended to be applicable for oiled sandy beach environments that you were acting as NOAA's coordinator for?

A. That was the --

Page 136:01 to 137:01

00136:01 Q. (BY MS. KARIS) Go ahead.

A. That was the intent of the report.

Q. Thank you. The report that you were aware of at the time you were working on the response at Page 1 says, "The conclusions of the report, however, are applicable to all oiled beach environments across the Gulf," correct?

A. That is their conclusion.

Q. Okay. That was the FOSC's conclusion, correct?

A. The FOSC put a cover letter on saying, you know, what there was in the report. He --

Q. Well, this --

A. -- didn't make these conclusions. He's not an expert --

Q. This is not --

A. He doesn't understand --

Q. This is not part of the FOSC's cover letter, is it? This is part of the OSAT report itself?
A. That's right. So I -- I guess I -- I disagree with your -- your inference that this was the FOSC's conclusion. You

Page 137:08 to 137:14

A. So this was a report, you know, written by a group of people who were pulled together to assess whatever he says they were going to assess. So he just throws a cover letter on saying this is what they said.
Q. Okay.
A. It's not what he said.

Page 137:23 to 138:02

Q. Okay. And if you turn to the last page here, Page 35, the OSAT membership that put out this report included member from the Coast Guard, member from BOEMRE, multiple members from NOAA, correct?

Page 138:09 to 138:23

Q. (BY MS. KARIS) Do you know whether the OSAT membership included multiple folks from those three government agencies?
A. I can read the list here and -- and -- and identify them as multiple agencies, yes.
Q. Okay.
A. I didn't know who was on the OSAT-2 while it was being prepared.
Q. Okay.
A. I had very little knowledge. They -- you know, this OSAT-2 program was being in New Orleans. I was working in Houma. I had zero interaction with this group.

Page 139:05 to 140:16

Q. I understand you may have had zero interaction, but you knew and were aware that they put out a report while you were still actively working on the response that stated that the conclusions were applicable to all oiled beach environments across the Gulf, correct?
A. Yes.

Q. Thank you. Is it your testimony that you did not use the OSAT-2 report or its results in any way to inform your cleanup recommendations?
A. No. That is correct, I did not, because the -- we had, you know, the Stage II and -- Stage III and IV and SCCP, you know, no-further-treatment guidelines and for sand beaches and they were pre-approved and that's what we were following.
Q. Okay. And did you look at the OSAT-2 report to see what the report said with respect to which beaches met and satisfied those requirements?
A. No, the -- the OSAT-2 report had nothing to do with the established shoreline no-further-treatment guidelines or cleanup end points.
Q. Okay. Now, I take it, then, you don't know what, if any, reliance there was on the SCAT survey program in connection with the OSAT-2 work; is that correct?
A. In Louisiana in our -- in Louisiana perspective there was little or no information provided in the OSAT-2 report that had any -- had any, you know, bearing on the shoreline cleanup end points that had been agreed to and were being implemented in the field.

Page 141:01 to 145:07

Q. Okay. Now, if we can go back to Tab 13, Exhibit 13007. Do you recall the e-mail exchange -- well, strike that.
This is an e-mail exchange between yourself and multiple other individuals, including members from NOAA and members from your company Research Planning, correct?
A. I think it's just me.
Q. Well, if you look further down the e-mail chain.
A. Oh, yes, there is -- they were copied on the e-mail, yes.
Q. Who is Antoinette or Toni Debosier?
A. Debosier.
Q. Debosier.
A. She is a person that was hired under contract to NOAA to be the NOAA environmental liaison.
Q. Okay. Ms. Debosier writes to you on August 15th of 2012, more than two years after the spill, "One issue that NOAA

has been asked to address" -- I'm sorry. Senator Landrieu sent a letter to the Admiral, who sent the letter to the Captain, wanting Louisiana issues addressed and/or questions answered. One issue that NOAA has been asked to address is the State claims there are still, quote, unquote, unsurveyed segments along Louisiana shoreline that have never been surveyed or inspected during the response, correct?

A. That's what the letter -- that's what the e-mail says, yes.

Q. And you were asked on behalf of NOAA to respond to this letter that the Senator had sent to the Admiral, correct?

A. On behalf of Toni Debosier, who was sort of the assistant to the FOSC. So she was actually operating on behalf of the FOSC.

Q. Okay. So Toni Debosier, who was the NOAA environmental liaison, asked you to provide a response to this request, correct?

A. That's correct.

Q. Okay. And, to be clear, the request was claiming that there had been unsurveyed segments along the Louisiana shoreline, correct?

A. There are still unsurveyed segments along the Louisiana shoreline.

Q. Right.

A. Yes, that have never been surveyed or inspected.

Q. You responded to that comment, correct?

A. Yes, I did.

Q. And the response that you gave sets out the protocol for SCAT under the SCCP plan, correct?

A. That is the protocol for shoreline inspections by SCAT.

Q. And you say that resurvey of every shoreline that has ever been oiled, correct?

A. Part of the SCCP required that the SCAT teams resurvey every segment that had been oiled.

Q. And was that, in fact, done?

A. Yes. Except for, as I mentioned, the Chandeleurs, which we were not allowed to do that, because they did not want anybody out there again.

Q. Right. And you -- you make that point, which is "The only areas that were not completed were very few areas on the Chandeleur Islands where the land manager, the United States Fish and Wildlife Service

who manages the national wildlife refuge in this area, specifically requested that no further surveys were required," correct?
A. That's what they stated, yes.
Q. They preferred no -- I'm sorry, "They preferred to minimize any additional disturbance to these areas because their staff has been doing enough assessments to determine that no further surveys were required"?
A. That's correct.
Q. Okay. And then you also reference that the program included post-hurricane season inspections that were integral -- that were an integral part to the SCCP process, correct?
A. Yes.
Q. The objective was to have SCAT teams inspect those shoreline segments that had been previously determined as operationally inactive; that is, with the SCAT survey result of either no oil observed or met no-further-treatment guidelines, but that could have become re-oiled or the oiling conditions changed since the last survey due to the storms in -- during the 2011 hurricane season, right?
A. That is correct.

Page 145:11 to 146:16

Q. (BY MS. KARIS) The Louisiana State OnScene Coordinator submitted a list of those segments to the FOSC and Representative, correct?
A. We call it the FOSCR.
Q. Okay.
A. The representative of the FOSC.
Q. All right. And after that list was submitted, the segments were reviewed in a joint meeting between the SOSC, that's the State On-Scene Coordinator; the Federal On-Scene Coordinator R, representative; and SCAT to review the rationale for re-inspection of all of those areas, correct?
A. That's correct.
Q. They reviewed the past oiling history of each segment, the location of the segment relative to potential sources of re-oiling, and the overall distribution of the segment; is that right?
A. That's right.
Q. "Any segment that had been documented as having any oil was included"; is that correct?

A. It was included, yes.
Q. And when you say "was included," you mean it was included in what?
A. The list of segments to be resurveyed by SCAT.
Q. And was that, in fact, done?
A. Yes.

Page 147:02 to 148:08

Q. (BY MS. KARIS) Dr. Michel, before the break we were talking about Exhibit 13007, which was a response that you prepared in order to respond to a Senator's request about what had been or had not been surveyed along the Louisiana shoreline, correct? Just to reframe it.
A. Yes, that's where we are.
Q. Okay. And we talked about that they had resurveyed every shoreline that had been oiled, and now we were talking about the post-hurricane season surveying that had taken place, correct?
A. Right, the plan for that, yes.
Q. Okay. And you testified already that any segment that had been documented as having any oil was included in the plan and, in fact, the resurveying was done of that -- or surveying was done of that area, correct?
A. Yes.
Q. Okay. Then you go on to say that often adjacent segments were also included, correct?
A. Yes, SCAT teams were in- -- instructed to, you know, survey a segment that meet these criteria and to check, when appropriate, adjacent segments.
Q. Okay. So not only were they going back to resurvey areas that had been documented as having any oil, but also adjacent segments as part of this post-hurricane season inspection, correct?

Page 148:10 to 149:01

A. What you're referring to is these -- the -- the post-hurricane season inspections were different than -- than the ones that had ever had any oil.
Q. (BY MS. KARIS) Understood.
A. And in those cases, you know, these are the ones where they said, well, just in case there was some -- we identified areas that had a high risk of oiling and they were supposed to survey those and then based

on their experience any additional areas that they thought might be similar, just to make sure we were -- we were as comprehensive as possible.
Q. Okay. So it was actually broader than just anywhere where oil had been previously observed?

Page 149:03 to 152:20

A. You know, we specifically identified the -- the -- you know, the areas that were surveyed and it -- and it was -- oil that would -- had ever been oiled, plus any windows that we -- we thought had a potential risk of being oiled from oil that was remobilized during hurricanes.
Q. (BY MS. KARIS) Okay. And those segments were also then surveyed as part of the SCAT process?
A. We gen- -- we sat down and made a list and agreed -- you know, as the state SOSC brought a long list, the FOSCR and SCAT looked at that. We spent hours in a room. We -- you know, we agreed, and it was all based on a lot of best professional judgment what areas made most sense.
Q. Okay. And then surveying was done of those areas that were agreed to, correct?
A. Yes, they were.
Q. All right. And then in the third paragraph, No. 3, you say, Some "regments" -- segments, excuse me, along the Louisiana coast were not surveyed because permission to access these areas was -- was denied by the landowner, correct?
A. Yeah, along the outer coast.
Q. Okay.
A. That was the only place that we had issues with landowner access.
Q. All right. And you conclude your letter here, e-mail, by saying, "Otherwise, the SCAT Program has made every effort to survey every shoreline that was at risk of oiling during the spill," correct?
A. Yes, that was our -- our -- we made sure that we -- anything that was at risk, we tried to survey those, you know, as best as you can in the field. You know, you send people out. In a place like Louisiana it's -- it's a complicated shoreline, so it's --
Q. As of August of 2012 you believed that the SCAT program had made every

effort, as you called it, to survey every shoreline that was at risk of oiling during the spill, correct?
A. That's correct.
Q. Okay. You go on to describe who the SCAT program consists of and we've already talked about those folks, but they included land managers, archeologists, state representatives, federal representatives, NOAA representatives, BP representatives, correct?
A. Yes. And some -- and some -- and sometimes parish representatives.
Q. And sometimes parish representatives, I'm glad you brought that up. There were definitely times where parish representatives were included as part of the SCAT teams in the program, correct?
A. Yes, they all -- SCAT -- parish presidents always had the opportunity to join the SCAT team at any time.
Q. Anytime they wanted to join, they were welcome to join?
A. That's correct.
Q. And for all the individuals that worked on this, including BP and NOAA, you say, "They are professionals in oil spill response who take pride in the quality of their work and their reputation," correct?
A. Yes, very much so.
Q. You believed that to be true as of August of 2012, correct?
A. That's correct.
Q. And you still believe that to be true today?
A. Yes.
Q. The focus -- quote -- in your letter, you state, "The focus of this Unified Command team is to be eyes on the ground to completely document oiling conditions and make recommendations for shoreline treatment following the guidelines agreed to by consensus," correct?
A. Yes.
Q. And you believed that that was the focus of the Unified Command team, to be the eyes on the ground to completely document oiling conditions, correct?

Page 152:22 to 155:16

A. And make recommendations, you know, both things.
Q. (BY MS. KARIS) Both?
A. You document oiling conditions

or you make recommendations for treatment, so...
Q. Fair enough. The focus of the com- -- of Unified Command for the SCAT process was not only to be the eyes on the ground to document oiling conditions, but also to make recommendations, correct?
A. Yes, that was their -- their -- that was their charge.
Q. Okay. And did you believe that they -- that Unified Command team was working in accordance with that charge?
A. Yes, you know, as the SCAT coordinator for Louisiana -- as one of the SCAT coordinators for Louisiana, you know, that was my responsibility, to try to make sure they were doing the jobs that -- the best job they could.
Q. Exactly. And you believed that they were doing the best job they could?
A. Yes. And I think that's important, the best job they could, you know, considering, you know, the conditions. Louisiana is a tough place to work.
Q. When you say "Louisiana is a tough place to work," what do you mean?
A. Getting out to the shorelines, you know, you -- you -- you drive -- the only place you drive to a shoreline survey in Louisiana is Grand Isle and Fourchon and then -- and everywhere else you got to go by boat, and there is lots of wind and wave and electricity and lightning and, you know, unsafe conditions and boats breaks down and, you know, hazards and, you know, so it's a tough place to get out and to do -- and then the water levels are so high, you know. You know, during the summertime, you know, the water levels during the daylight hours are high tide. So how can you go out and do a survey, you know, do an adequate survey when the shoreline is covered? And yet there is pressure to get out and do certain things. An so it's -- you know, you do the best you can under those conditions.
Q. Okay. And you mentioned earlier, very early on today that part of your task was to put together health and safety --
A. Yes.
Q. -- requirements, correct?
A. Yes.
Q. And definitely tried to comply with those health and safety requirements in executing this?
A. In fact, we dropped off one of

the representatives of the team after this period of time, we -- from -- after a certain date we had to have a safety officer.
Q. Okay. And you tried to execute those responsibilities with safety always in mind, correct?
A. Yes. Well, you know, safety -- avoidance of safety is what got BP in trouble, you know, that started this whole event.

Page 155:19 to 155:25

Q. (BY MS. KARIS) Did you study what caused this incident?
A. No, but the SCAT coordinator said -- you know, when we'd have our meeting, they said, you know, safety is a concern. Safety has got us, you know, here. We're going to be very safe forever.

Page 156:05 to 156:11

Q. Okay. So back, then, to the execution of the SCAT program which is what you were involved with, you agree that that program was effective in identifying shoreline oiling and then making recommendations to clean up that oiling, correct?

Page 156:13 to 161:13

A. The SCAT program in Louisiana was, you know, un- -- like I said, under those difficult conditions, you know, we identified oiling, we wrote shoreline treatment recommendations, we observed treatment, made sure it was done well, we inspected it. So, yes, it was a very effective program, I think.
Q. (BY MS. KARIS) Is it fair to say that you did not agree with the claim here in the Senator's letter that there were unsurveyed segments that had never been surveyed or inspected, if you believe -- well, let me start -- start with that. You did not agree with the characterization here in that letter?
A. Actually, you know, she did state there -- correctly, you know, we did not survey every segment in Louisiana. There is, like, 46,000 miles of shoreline in Louisiana, depending on how you count it. We

didn't survey all those because we only surveyed those ones that we thought were at risk.
Q. Okay.
A. So, you know...
Q. You surveyed all the ones that you thought warranted being inspected, correct?
A. That's correct.
Q. All right. And so there are tens of thousands of miles of shoreline in Louisiana, but you did -- you didn't survey all those, but you did survey the ones that you thought were at risk of having been affected?
A. Yes.
Q. Okay.
00158:01 A. We feel very strongly about that. You know, we -- we -- you know, I'm sure there is -- there is gaps in missions, but the SCAT did -- team did the best they could to make sure as much of the shoreline they thought was at risk was surveyed as possible.
Q. Now, after the SCAT teams surveyed as much shoreline as possible that was at risk, they reported the results of their surveys to Unified Command for use in planning shoreline treatment operations, correct?
A. It's a little bit different process, but the SCAT surveys would come in, they would be entered in a database, they would -- the SCAT team, on the comment box they would recommend shoreline treatment rec- -- you know, or not and then the SCAT coordinator would write a shoreline treatment recommendation and the submit that for approval through the process, with all the documentation describing why, you know, the need for that treatment.
Q. The purpose of the shoreline --
00159:01 I'm sorry, the purpose of SCAT was to document shoreline oiling in a well-defined, systematic approach and to use that information to assess and develop cleanup recommendations, correct?
A. Yes, that was the -- you know, the teams go out and do the surveys and then the -- in Louisiana the SCAT coordinator was the person who actually developed the shoreline treatment recommendations based on the information provided by the SCAT teams.
Q. The objec- -- would you agree that the objective of the shoreline cleanup operations was to accelerate the removal and

natural weathering of stranded oil?
A. One of many things, yes.
Q. And you -- would you agree that the objective was to accelerate the removal and natural weathering of stranded oil so that the ecosystem and public usage can return to pre-spill conditions as soon as is practical, using best management practices?
A. Yes, the STRs always included, you know, areas for treatment and not -- no-further-treatment guidelines or the shoreline cleanup end points as well as best management practices to reduce impacts to animals or other resources that, you know, during the treatment operations, things like, you know, set-asides for bird nesting, you know, only use manual methods or, you know, buffers around ecological sites, those are the kinds of best management practices that were included on shoreline treatment recommendations.
Q. Okay. And the objective, then, of the cleanup operations was to return the shoreline to pre-spill conditions as soon as is practical, correct?
A. That is the mission of the entire response, yes, to get the shoreline cleaned up so everybody can go home.
Q. As soon as practical?
A. As soon as practical.
Q. Correct?
A. Yes.
Q. And in undertaking that cleanup, you agree that it is important that implementing the treatment does not cause more damage than the oil itself?
A. That is a general guidance, yes. However, that doesn't always get applied.
Q. When you say "that doesn't always get applied," do you mean sometimes damage is caused as a result of treatment?
A. Of course.
Q. Okay. But you agree that it is important when implementing treatment to not cause more damage than the oil itself?
A. That is the goal, yes.
Q. And be --
A. Things don't always go according to goal.

Page 162:21 to 163:01

Q. And I'm going to ask you to stick the next exhibit sticker on here, 13009, and this is bearing Bates stamp

HCG236-004935 through 39. Have you seen this document previously?
A. I don't recall.

Page 163:17 to 163:24

Q. Okay. Do you see in the "To" line that you're one of the recipients there?
A. Yes.
Q. From time to time while you were working on the response did you participate in external communications; that is, calls to various government officials and media?
A. Yes.

Page 164:06 to 164:12

Q. Sure. And if you look at the bottom one there, from 11:00 to 11:30 Central Standard Time, a QA teleconference for local media in Alabama and Mississippi with NOAA SCAT coordinator Dr. Jackie Michel, amongst others, correct?
A. Yes.

Page 166:02 to 166:03

Q. And there are some key messages there from that conference call, correct?

Page 166:05 to 166:24

A. I don't recall this document or who generated it, but there is a -- a section called "Key messages."
Q. (BY MS. KARIS) At least according to the document, Ruth was to make brief remarks, introduce the other speakers, which included you, as well as Elliott Taylor, correct? I'm sorry, I'm looking at Page 936.
A. 936. That's what it says, yes.
Q. And then after making those introductory remarks, turn it over to Dr. Michel to make remarks, correct?
A. That's what it says, yes.
Q. And Dr. Michel would be you?
A. That's correct.
Q. Okay. If you go to the page ending in 938, there are a number of bullets under the section of "Key messages," correct?
A. I see that.

Page 167:04 to 168:03

00167:04 Q. Okay. And I want to go now to
05 the page ending in 939, "Liaison Talking
06 Points." Do you have any reason to doubt
07 that when you received this, you would have
08 looked at it, given that it was sent to you
09 and at least you're identified here as
10 somebody who was scheduled to participate in
11 this?
12 A. Oh -- oh, yes.
13 Q. You would have reviewed it,
14 correct?
15 A. Yeah, I would reviewed it, yes.
16 Q. Okay. So do you see the page
17 ending in 939?
18 A. Yes.
19 Q. The third bullet, "It's
20 important that implementing the treatment
21 does not cause more damage than the oil
22 itself." We talked about that, correct?
23 A. Yes.
24 Q. And then it goes on to say,
25 "This is why treatment is conducted up to the
00168:01 point that no further treatment is
02 recommended," correct?
03 A. That's what it says.

Page 168:07 to 168:12

00168:07 Q. (BY MS. KARIS) Do you agree
08 with the key messages talking point that is
09 in this document, that in order to not cause
10 more damage than the oil itself, treatment is
11 conducted up to the point that no further
12 treatment is recommended?

Page 168:14 to 168:25

00168:14 A. You know, all those points,
15 everything else are spoken in context of
16 whatever the time and phase and everything
17 else. So -- but, you know, that -- if you
18 read anything I've ever written, any SCAT
19 documentation, any cleanup guidelines, they
20 always say try not to do more harm than good,
21 because that's what we want to do, and it all
22 depends on your trade-offs. So these are the
23 general guidelines, and that's what we agree
24 to. So, yes, I would do that on every spill
25 I work on.

Page 169:25 to 171:07

00169:25 Q. Understood, understood. Do
00170:01 STRs, or shoreline treatment recommendations,
02 describe in detail how to treat specific
03 shoreline segments?
04 A. Not in detail.
05 Q. Okay. Do they provide guidance
06 to the operations teams about appropriate
07 treatment for oiled shorelines?
08 A. You know, what an STR describes
09 an oiled area. There is a section -- it's
10 very regimented. There is a section that
11 says area to be treated. The next section
12 says recommended treatment methods, and it
13 will have words in there that come from the
14 standard terminology that's allowed. And
15 there is another section that says logistics.
16 There is another section that says
17 environmental constraints. And so, you know,
18 those are standard parts of an STR, and
19 you -- you can't be too specific because,
20 especially on beaches things are dynamic.
21 So, you know, you -- you're as specific as
22 you can, but you want to be as broad as you
23 can so that -- you know, operations takes
24 those STRs, they believe them exactly. They
25 say, okay, oh, we're supposed to go from here
00171:01 to here and if we see -- we've had this
02 before. They're at that -- give them that
03 long. Okay, stop here. Right there there
04 was a -- some oil to be cleaned up, and they
05 said, well, we were supposed to go this far.
06 So you don't make them specific. You make
07 them guidance.

Page 171:23 to 172:24

00171:23 Q. Okay. Now, would you agree,
24 though, that the purpose of an STR is to
25 provide guidance, at least, with respect to
00172:01 appropriate treatment for -- for oiled
02 shoreline --
03 A. Yeah, we --
04 Q. -- even if they're not rigid?
05 A. Yeah. No, we tell them what
06 they -- what techniques they can use.
07 Q. Okay.
08 A. We don't tell them, you know, in
09 gory details. We manual removal, that
10 includes hand tools, shovels, rakes, you
11 know, things -- we don't tell them to use a
12 certain rake of a certain size. We just tell
13 them they can use manual hand tools.
14 Q. Okay. And would you agree that
15 the purpose, at least, of the STR, without
16 telling them what they can -- provide

guidance, is to make the response efficient and environmentally sound?
A. It's to make the shoreline cleanup operation, you know, I guess -- we never use the word environmentally sound. We want the operations to be conducted in a way that cause, you know, the greatest recovery and the least impact.

Page 173:02 to 173:23

Q. And mark this as 13010, please, Exhibit 13010. This bears Bates stamp HCE013-007907 through 11, 911, correct?
A. Yes, all the way.
Q. This is an e-mail dated February 19th of 2011, correct?
A. Yes.
Q. And you were one of the recipients of this e-mail for the STR approval process, correct?
A. Yes, I was.
Q. And it attaches the review process flow for Louisiana. That was the state that you were writing STRs for, correct?
A. That's correct.
Q. Okay. And do you see in the second paragraph here of the cover e-mail where it says, "The attached process flow will be used for all STRs from this point forward"?
A. Yes.

Page 174:01 to 174:18

Q. (BY MS. KARIS) It goes on to say that the process is going to be used from this point forward. It says, "The success of this process as shown in Louisiana" -- is it Lafourche?
A. Lafourche.
Q. -- "Lafourche Parish STR that went through the pre-review notice and final approval in 4 days and 1.5 hours and three MS STRs in 4 days and 16 hours," correct?
A. You're reading it correctly, yes.
Q. Okay. And it goes on to, say, "This is what will make this response efficient and environmentally sound and will recover any oiled shoreline quickly, minimizing or eliminating any potential future damage to the environment," correct?

Page 174:20 to 174:21

00174:20 A. You are reading the memo from
21 John Nepywoda, yes.

Page 175:01 to 175:08

00175:01 Q. And what he says is is the STR
02 process and following that attached flow
03 process for the STR is what going -- is
04 what -- is what is going to make the response
05 efficient, environmentally sound, and will
06 recover any oiled shoreline quickly,
07 minimizing and eliminating any potential
08 damage -- future damage, correct?

Page 175:10 to 175:13

00175:10 A. You know, you read it again --
11 Q. (BY MS. KARIS) That's what he
12 told you?
13 A. That's what he wrote.

Page 177:06 to 178:07

00177:06 Q. (BY MS. KARIS) In writing the
07 STRs --
08 A. Yeah.
09 Q. -- was it your objective to
10 minimize or eliminate any potential future
11 damage to the environment?
12 A. You write STRs to speed -- you
13 know, to remove oil and speed the rate of
14 recovery.
15 Q. And --
16 A. And so, like, at SCAT we don't
17 use damage; and so, you know, we talk about
18 impact. Damage has a different connotation.
19 So we -- in SCAT we -- we're trying to remove
20 oil in the shoreline to speed that recovery
21 process.
22 Q. And was it your objective, then,
23 in writing the STRs to remove the oil in the
24 shoreline to speed the recovery process as
25 efficiently and -- and -- as efficiently as
00178:01 possible? Let's start with that.
02 A. Yes, because it was taking a
03 long time to get these STRs issued to
04 operations. So we wanted to do that
05 efficiently to -- and so that then operations
06 can start the work. Now, we have no control
07 over the efficiency of operations.

Page 178:17 to 179:05

00178:17 Q. I --
18 A. In SCAT we write in ways to try
19 to speed recovery, reduce impacts associated
20 with the response, and remove as much oil as
21 possible without causing additional damage,
22 so...
23 Q. Okay. So while you don't use
24 the word environmentally sound, your
25 objective is to reduce the impacts and speed
00179:01 up recovery?
02 A. Yes, those are the SCAT --
03 that's what -- that's the objective of
04 issuing, you know, shoreline treatment
05 recommendations.

Page 180:06 to 180:10

00180:06 Q. A key element in the development
07 of the STRs was the application of the NEBA
08 concept for oiled wetlands and waste
09 minimization for the cleanup of sand beaches,
10 correct?

Page 180:12 to 180:12

00180:12 A. You know, in general, yes.

Page 180:14 to 180:17

00180:14 A. I mean, those are general,
15 good -- good practices guidelines.
16 Q. That was a key element in the
17 development of the STRs, wasn't it?

Page 180:19 to 180:25

00180:19 A. No, not in development of the
20 STRs, I mean --
21 Q. (BY MS. KARIS) Can you turn to
22 Tab 8 again, Exhibit 13006? Again, your
23 publication. And can you read into the
24 record under "Discussion," third paragraph,
25 the first sentence in your publication?

Page 181:02 to 181:04

00181:02 A. Now, remember, you know, I'm
03 just a minor co-author. These are written
04 primarily by somebody else.

Page 181:21 to 182:05

00181:21 Q. Now, read into the record the
22 first sentence in the third paragraph.
23 A. I'm...
24 Q. Two key elements.
25 A. Oh, "Two key elements in the
00182:01 development of shoreline treatment
02 recommendations were the application of net
03 environmental benefit concepts for all the
04 wetlands and waste minimization for the
05 cleanup of sand beaches."

Page 182:15 to 184:07

00182:15 Q. (BY MS. KARIS) My question is
16 whether you agree with what you -- what's
17 published there on a publication that has
18 your name.
19 A. Yeah, the net environmental
20 benefit, you know, by the field teams, they
21 apply that, they decide that, you know, based
22 on their experience, that, you know, they
23 don't want to cause more harm than good, so
24 they would make that net environment benefit
25 and then recommend treatment or not. And so
00183:01 the -- you know, the development of the
02 treatment recommendation was based on the
03 field application of those net environmental
04 benefit analyses.
05 Q. Dr. Michel, my question is do
06 you agree with the sentence in this
07 publication, yes or no, that the
08 environmental benefit analysis was conducted
09 based on experience and well-established
10 practices that cleaning beyond a certain
11 level particularly in wetlands can delay
12 rather than accelerate recovery?
13 A. Of course, yes. That's what
14 I've been saying.
15 Q. Okay. And do you agree with the
16 first sentence there that two of the key
17 elements in the development of shoreline
18 treatment recommendations were the
19 application of net environmental benefit
20 concepts for oiled wetlands and waste
21 minimization for the cleanup of sand beaches?
22 A. In general, yes, I mean, that
23 was -- those are the overarching -- you know,
24 within the context of the broader picture of
25 the SCAT program, yes, those are -- those are
00184:01 two elements.
02 Q. The cleanup criteria for
03 specific shorelines were developed based on
04 habitat type and use, correct?

A. Yes, remember, we had the shoreline -- the different TWGs for the different shoreline habitats.

Page 184:13 to 191:09

Q. (BY MS. KARIS) Different environmental factors were considered when developing shoreline treatment recommendations, correct?
A. A wide range of factors, yes, yeah.
Q. And those factors included protection of wildlife habitat?
A. Sure.
Q. And they also included consideration of archaeological resources, correct?
A. Yes, under law, the federal OS -- fed- -- the FOSC is required to not -- avoid damaging or disturbances of -- of archaeological resources, very much so.
Q. And if I could ask you to turn now to Tab 16, please. This is an e-mail bearing Bates stamp US_PPN_NOAA175960 through 972, and I'm going to ask you to put Exhibit 13011 sticker on it, please.
A. Okay.
Q. Thank you. This is an e-mail from you to a number of individuals dated March 11th of 2011, correct?
A. Yes.
Q. And you're attaching here an STR, a shoreline treatment recommendation for northwest Grande Terre 1?
A. Grande Terre.
Q. Tere 1, I'm sorry. Correct?
A. Yes.
Q. It's for the northwest end of Grande Terre 1, correct?
A. Yes.
Q. A sand beach, correct? Right at the top it says.
A. It's a sand beach.
Q. Okay.
A. Yes.
Q. Now, you copied a number of individuals as recipients for this STR. Is this representative of the number of individuals that would receive the STRs that you were preparing?
A. Yes, this was the -- if you look in the -- at the -- one of those -- the STR process that John Nepywoda put together, we risk -- had a specific list of people who

were supposed to receive STRs as they were issued to operations.
Q. Okay. So there are a number of individuals that would receive the shoreline treatment recommendation for a particular segment, correct?
A. For -- yes, they -- everybody got the -- you know, the distribution list was almost always the same for every STR.
Q. Okay. And the STR itself which begins at 961, was this representative -- was this form and the information contained here representative of the information that was contained in STRs that were prepared for the
00187:01 spill?
A. It is representative of -- of STRs that were published under Stage III, IV, and the SCCP.
Q. And the form first identifies the oiled area for treatment, correct?
A. That's it.
Q. I'm sorry, before that it actually identifies the treatment type. Is it surface, is it subsurface, submerged, manual, mechanical, correct?
A. Well, even before that it -- it starts off with a segment, name, you know, and number, the location, the shoreline type, treatment type; and then under that there is the oiled area for treatment.
Q. Okay. So you would list in here what the oiled area for treatment was? That was what the STR -- I'm sorry, that's the information that you would put into the STR, correct?
A. Yes, based on the SCAT surveys they would have done -- have recommended certain areas for treatment, and we would bring those forward and include them in the
00188:01 STR.
Q. And then there is a cleanup recommendation, a section for that, correct?
A. Yes.
Q. And, likewise, would you include what the cleanup recommendation was?
A. Of course, that's the section that you put your cleanup recommendations in.
Q. And then there is a section for ecological concerns, wildlife concerns, and then geomorph- -- geomorphological concerns, correct?
A. Well, there is a staging and logistics area and then under ecological concerns there are wildlife and geomorphological under ecological concerns and then cultural and historical concerns

have their own call-out.
Q. All right. And so the treatment recommendation plan would identify what wildlife concerns existed and that were being taken into account when coming up with this recommendation, correct?
A. We were given for sand beaches this generic -- essentially generic
00189:01 paragraph.
Q. Okay.
A. And then by the agencies responsible for wildlife and -- and they would refer to the list of BMPs, which were more specific to what you could do and not do.
Q. Okay. And BMP is best management practice?
A. Yes.
Q. And so you were given the paragraph for ec- -- for wildlife concerns by the U.S. agency responsible for wildlife, correct?
A. Mostly the state.
Q. State, I'm sorry. By the state agencies --
A. Yeah.
Q. -- responsible for wildlife, correct?
A. Yes.
Q. Okay. And the geomorphological concerns, who provided you with those?
A. Back then they were called OCPR. Now they're called CPRA. It's the Office of
00190:01 Coastal Profession and Restoration.
Q. Okay.
A. That became standard language that they wanted us to put in there, into the STR under geomorphological concerns.
Q. All right. And if you turn to Page 966, you referenced previously best management practices or BMPs.
A. Yes, this is what we called the BMP checklist.
Q. And so this would identify what the best management practices were for specific wildlife that were being taken into account as part of this STR, correct?
A. These BMPs became attached to had to be followed, complied with during the treatment operations on this segment.
Q. And what is a best management practice?
A. A best management practice are a -- actions that should be taken in order to perform the activity that you've been directed to do in a way that meets certain,

you know, criteria or to reduce, minimize impacts. I'm not sure of the official definition, but these are things that if you comply with these, then the agencies -- the resource agencies would op- -- they would -- if you comply with these, then you would be -- be complying with the guidance given in the STR and therefore you would hope to minimize any damage to wildlife or archaeological resources or habitats during the treatment operations.

Page 191:12 to 191:22

BMPs, best management practices, were developed in order to minimize any potential impact to threatened and endangered species, for example, as part of the cleanup operations?
A. Yes, the BMPs were required under regulatory requirements under -- to protect threatened, endangered resources, essential fish habitat, and historic and cultural resources under the National Historic Properties Act.

Page 192:02 to 193:10

Q. (BY MS. KARIS) NOAA developed the BMPs in -- for the very purpose of minimizing the potential impact of threatened and endangered species, which became part of the STRs, correct?
A. The BMPs actually were developed, I believe, by the U.S. Fish and Wildlife Service; and NOAA participated in those. So it -- they're called the surfaces. Under the Endangered Species Act they -- they each have their own resources that they are responsible for, so...
Q. All right. So between the U.S. Fish and Wildlife Services and NOAA's participation in that, they were prepared to minimize potential impacts to threatened and endangered species, correct?
A. And --
Q. Is that --
A. -- essential fish habitat and, you know, not just -- not just threatened endangered species, but, yes.
Q. Understood.
A. Yeah.
Q. Understood. So threatened endangered species plus fish habitats plus other --

A. Essential fish habitat, you know, it's a regulatory thing.
Q. Okay.
A. And then under Section 106 of the National Historic Properties Act, you know, so we wouldn't damage archaeological resources.

Page 193:23 to 195:08

Q. Okay. Are you familiar with the nat- -- Natural Resource Adviser program, it's called NRA program?
A. The NRA or the Reed, I think they're both the same, yes.
Q. Okay. What is -- can you describe that program?
A. Under that program the Fish and Wildlife Service had BP hire Natural Resource Advisers or Reed resource advisers to accompany the operational teams that were doing the shoreline treatments and observed their compliance with the BMPs.
Q. And so the function of the Natural Resource Advisers was to accompany those who were carrying out the recommended practice for cleanup, correct?
A. Who were in- -- yes, they were -- the operations teams were implementing the shoreline treatment recommendations.
Q. And they were there to ensure that they were complying with best management practices in executing cleanup activities, correct?
A. They were observing their, you know, compliance with the specific BMPs that were attached to the shoreline treatment recommendations.
Q. All right, fair enough. We talked earlier about the BMPs.
A. Yeah.
Q. They were ensuring compliance with those specific BMPs, correct?
A. That was the -- that was the responsibility of the Reeds or the NRAs.

Page 195:23 to 196:10

Q. Okay. You were aware that there was a substantial number of NRAs, correct?
A. Yes.
Q. And you were aware that they were embedded within the field operations crews, correct?

A. Yes, they were essentially part of operations to, you know, accompany the operations teams.
Q. The NRA program was an innovative approach to protecting natural and cultural resources during the response, correct?

Page 196:12 to 197:04

A. You know, we've always had monitors and other things, but this was the first time they had, you know, had this kind of documentation that they -- these were all -- these forms were all computerized. They checked them off. They loaded them up every night. They had GPSs, their lat, long. So it was a really complex organization. And so the innovation part of it was sort of the way that a lot of the data captured realtime. It's -- you know, we make sure that operation complies with best management practices during most spill responses.
Q. (BY MS. KARIS) That's a standard practice, to make sure that the operations teams are complying with the best management practices, correct?
A. Yes, it is.

Page 198:17 to 198:23

Q. Okay. Did BP support the use of NRAs during the response, if you know?
A. As I understand, they paid for them all, so...
Q. Beyond just paying for them, did they support using NRAs as part of the response process?

Page 198:25 to 199:05

Q. (BY MS. KARIS) If you know.
A. It was a requirement. And I don't know if they -- you know, no one told me that they supported it. They just did it because it was part of the, you know, operational permit to work. It was required.

Page 199:22 to 200:06

Q. Turn to Tab 4, please. This would be Exhibit 13005. If you turn to Page 4 of that exhibit. "Cultural Resource

Advisers (Section 106)."
A. You know, this is a paper that was published for the area-wide; and it was written by, you know, BP and others, you know, I'm just a co-author.
Q. Others, including yourself?
A. Right, yeah.

Page 200:19 to 202:24

A. Good point. You know, it gets out for review, you comment on it, you submit your comments, and they submit the paper. You never see it again.
Q. If you don't agree with the contents of a paper, you certainly aren't required to leave your name on there as a co-author, are you?
A. You know, content and the detail wording, you know, I would have said some things very differently in this document. But he was the lead author. I was fine to let him do it. I only made comments on sections that I would feel strongly about.
Q. My --
A. So, for example, using the C -- cultural resource adviser, we don't have cultural resource advisers in Louisiana. We didn't call them that. But they called them that in the larger program. So I didn't make any comment on this section because -- as being wrong because it was right in the broader picture.
Q. Did you -- regardless of what you called them in Louisiana, did you have a team that was looking at the management of historical properties and cultural resources?
A. Not as part of the SCAT program. That function was a little bit separate. They did not report to SCAT. I did not direct them. They were not part -- they -- BP hired them as a separate group under the environmental unit. So they were advisers of SCAT. They were members on SCAT teams. But they had their own line of reporting and documentation, and then we actually -- SCAT actually consulted with them. We had to -- you know, not so much the cultural resource advisers, the Section 106 people. When you saw the shoreline treatment recommendations, there was a whole thing associated with Section 106 compliance and that -- you know, that was just documentation under separate regulations that SCAT was responsible for compiling into the document.

Q. Okay. Was there a team of archeologists who were conducting field surveys of the entire impacted shoreline, if you know?
A. I know that archeologists accompanied SCAT teams to do archaeological surveys in areas that they thought appropriate. They would assign themselves to the teams. And then so, I mean, whether -- what other areas they surveyed independently, that was outside of SCAT.

Page 203:21 to 207:07

Q. Thank you for rephrasing. What was the process for the SCAT coordinator --
A. Yeah.
Q. -- for comment and approval of STRs?
A. Well, you -- you know, if you -- it's documented in that mem- -- e-mail and attachment from Nepywoda.
Q. Well, why don't you just describe it for us.
A. Okay. Best as I can remember. Let me think. Because it was a very regimented process.
Q. Okay.
A. Okay. The draft STR would be sent first to operations, which included both BP and Coast Guard staff, and they had 24 hours to provide comments on the STR. Their comments were then considered and within 24 hours we would issue a version for agency review and that would be sent out to that long list of people that were on the attachment by Nepywoda and they had 48 hours to comment on it. And then the SCAT coordinator would compile those comments, if they were anything significant rather than simple word changes, that there had to be something to be discussed with any of the commenters, we would have that -- that conversation to get clarification and refinement of the language in the STR. And then once that was done, we would send it out for one final review to everybody. And if there were no comments, then it would be packaged and shipped -- issued to operations, again, copying everybody.
Q. All right. If you could turn to Tab 15, Exhibit 13010. And the attachment to that, there is a STR review process flow for Louisiana.
A. Right.

Q. Is that the process you just described?
A. Yes.
Q. And was that process followed in connection with the STRs that you were involved with?
A. With my -- with few exceptions, yes. You know, there are always issues associated with, you know, the timing because of certain events or -- I didn't mention the possibility of a technical advisory group to sort of deal with the -- with questions, that -- comments that could not be resolved. So, you know, that's about the -- that's -- that was the process followed most of the time.
Q. So the recommended treatment plan was received by -- the shoreline recommended treatment plan was received by multiple United States agencies, correct, UFWS, NOAA, NMFS, and others, correct?
A. Per -- yes, under the, you know, different regulatory requirements.
Q. Okay. And multiple federal agencies as well as state agencies, had the op- -- and, as you said, at times parish members, had the opportunity to provide comments to the STRs, correct?
A. Yes. In fact, the state OSC was responsible for seeking comment from -- at the parish level. And then they -- their comments would be combined into the state comments. We were not responsible for soliciting comments from all the -- all the different parishes.
Q. Okay. And as part of the final approval process, after all those agencies that are listed there receive them, then the FOSC is to sign off on the STR, correct?
A. All three members of the Unified Command signed off.
Q. But you see here it says FOSC?
A. Yes --
Q. And the --
A. After all those others have signed.

Page 207:14 to 208:03

Q. I understand. But after all those individuals have signed, then the FOSC has the final signature, correct?
A. Yes, the FOSC does -- is the last person to sign the STR.
Q. Okay. And so no STR can go out

without the approval of the FOSC, correct?
A. Yes.
Q. Now, after the FOSC signed off and approved the STR, the operations teams went out to implement the STR, correct?
A. I would assume so. They did not report to me. But when they went out, but --
Q. That was the process --
A. Yeah.

Page 208:18 to 209:12

Q. (BY MS. KARIS) And you were aware that there were operations teams out in the field implementing the STR, correct?
A. It was a -- a function of SCAT to make sure -- to communicate with the ops in case they had any questions about the STRs during the implementation. So SCAT teams were often in the field at the same time that operations were doing their, you know, treatment and -- and providing guidance as necessary.
Q. After cleanup activities were completed, ST -- I'm sorry, SCAT teams conducted follow-up inspections, correct?
A. We -- SCAT teams would do inspections after the -- once operations notified the SCAT program, the SCAT coordinator that they were ready for inspection. We got an RFI. You know, SCAT is nothing but acronyms.

Page 210:01 to 210:05

Q. (BY MS. KARIS) Okay. So the SCAT teams were going to verify if the shoreline cleanup -- or, I'm sorry, if the shoreline oiling conditions had met the end points, correct?

Page 210:07 to 210:14

A. I guess that's not what I said. I said they go and inspect and then -- you know, the verification is not the right word. They document the conditions, because operations says they're ready -- you know, they -- they think they're ready. We go out and document, determine if the site met -- meet end points.

Page 211:06 to 213:01

00211:06 Q. If the segments that were
07 inspected did not meet end points, do you
08 know what the follow-up process was?
09 A. Yes. The SCAT teams would come
10 back and with their forms and they would fill
11 out a cover sheet that would say -- you know,
12 they'd fill out the normal SCAT from, they'd
13 put a cover sheet on there and there is a
14 check box that says, yes, meets end points,
15 no, does not meet end points, describe the
16 section that wasn't -- did not meet end
17 points, identify, you know, any further
18 treatment that was recommended for that area,
19 and then we would then issue that -- return
20 it back to operations.
21 Q. And so then operations had to go
22 back out and --
23 A. Continue the treatment.
24 Q. Continue the treatment. And
25 then there would be another process for
00212:01 inspecting the treatment to confirm that it
02 met the end points, correct?
03 A. We would get another request
04 from operations for request for inspection
05 and we would schedule that within the
06 appropriate amount of time and go out and do
07 our survey again and if it met the end
08 points, then -- then it would be that -- you
09 know, again, if we're talking under the
10 shoreline completion -- Shoreline Clean-Up
11 Completion Plan, it was a very complicated
12 process -- that's how we get out of the
13 response if you're talking about -- you know,
14 there are other phases which we inspected and
15 said you meet these interim guidelines, but
16 you're not -- it's not over yet, but it's
17 only during the SCCP process where, you know,
18 it took four SCAT -- at a minimum of four
19 SCAT inspections before a segment was
20 redeemed, ready to move out of the response.
21 Q. Okay. So after a minimum of
22 four SCAT segments, that was the soonest that
23 a segment was eligible to be moved out of the
24 response, correct?
25 A. Minimum four SCAT surveys or
00213:01 inspections, not segments.

Page 213:13 to 214:07

00213:13 Q. Tab 19 bears Bates stamp
14 N5C001-001879 through 96, and this is titled
15 "Mississippi Canyon 252 Incident Near Shore
16 and Shoreline Stage I and II Response Plan."
17 Are you familiar with this document?

A. Yes, I am.
Q. And this is the Stage I and II response plan that we spoke of earlier today, correct?
A. Yes, it is.
Q. I'm sorry, yes. And, for the record, if you could -- I'm sorry, this is Exhibit 13012.
And if you could turn now to Tab 20, we're going to mark this as Exhibit 30 -- I'm sorry, 13013, Bates stamp G -- I'm sorry, CGL001-0221060 through CGL001-0021158.
MR. ZEVENBERGEN: It's actually 001-0221158.

Page 214:13 to 214:22

Q. (BY MS. KARIS) This is the Stage III SCAT treatment -- implementation framework, correct?
A. It's the "Stage III-SCAT Shoreline Treatment Implementation Framework."
Q. Okay. And so this is the framework that was applied for the SCAT III process that we -- Stage III process that we were talking about earlier, correct?

Page 214:24 to 215:02

A. The title of the document is the Stage III, yeah, SCAT shoreline treatment and Implementation framework. So this is the Stage III response plan.

Page 215:04 to 215:05

THE WITNESS: For -- yeah, good point.
A. (Continuing) For Louisiana.

Page 215:11 to 216:16

Q. Okay. So this would have been the framework that applied to the work that you were doing as the NOAA SCAT coordinator, correct?
A. That is correct.
Q. Turn, if you will, to the page ending in 1066. That's Page 4 of the SCAT III shoreline treatment implementation framework. You reviewed this document, correct?

A. Yes, I did.
Q. Okay. And under "Sandy Shoreline Oiling Conditions" it says the "Guidelines for the development of appropriate treatment strategies are based on the following considerations:
"Most of barrier" --
A. I'm sorry, where --
Q. I'm sorry.
A. On Page 4 at the very top.
Q. Yes.
A. Guidelines for the development, are based on the following.
Q. Okay.
A. I understand where you are.
Q. According to the shoreline treatment -- I'm -- Stage III sketch early implementation framework, it says, "Most of the barrier islands in Louisiana are highly erosional, with landward retreat rates of tens of meters per year," correct?

Page 216:18 to 217:19

A. You are -- you know, you are reading the text accurately, yes.
Q. (BY MS. KARIS) Do you have any reason to disagree with that statement?
A. No.
Q. Had you done cleanup work in Louisiana previously?
A. Yes, I have responded to spills in Louisiana previously.
Q. And did you have an understanding as to whether most of the barrier islands in Louisiana were highly erosional?
A. Yes, Louisiana barrier islands are highly erosional.
Q. That would be independent of the spill, correct?
A. Yes, there has been a long history of beach erosion.
Q. If you could turn to Tab 21. We'll mark this as Exhibit 13014, document bearing Bates stamp HCG289-007051 through 7064, titled "Deepwater Horizon 2011 Shoreline Plan for Louisiana," dated March 23rd of 20 -- I'm sorry, March 23rd of 2011. Are you familiar with this document?
A. Yes, I am.

Page 217:25 to 218:01

Q. Not only what is the title, but

00218:01 what is the document?

Page 218:03 to 219:06

00218:03 A. It's the shoreline plan for
04 shoreline operations in 2011 for Louisiana.
05 Q. (BY MS. KARIS) Okay. Is this
06 the Stave IV plan?
07 A. You know, I don't remember
08 the -- the names, but I would think that
09 that's what we referred to as the Stave IV
10 plans.
11 Q. This Stave IV plan was signed --
12 I'm sorry, do you see on the document file
13 name there where it says, final DWH SCAT Plan
14 Stave IV?
15 A. Yes, that's the -- the document
16 name.
17 Q. Okay. This document was signed
18 by the environmental unit leader as well as
19 the United States Coast Guard Incident
20 Commander and the BP Incident Commander,
21 correct?
22 A. Yes, those are the
23 representatives in the Unified Command at
24 those levels.
25 Q. Do you see there is no signature
00219:01 next to Louisiana SOSC?
02 A. That's right, the state did not
03 sign this plan.
04 Q. And do you have an understanding
05 of why the state did not sign this plan?
06 A. No.

Page 220:22 to 221:13

00220:22 Q. (BY MS. KARIS) Dr. Michel, let
23 me ask you this: Were you interacting
24 directly with the states in trying to get
25 their approval for the Stave IV plan?
00221:01 A. Yes, I was part of the team that
02 helped prepare the plan and had meetings with
03 the state representatives of what should be
04 in the plan as well as the BP representatives
05 and -- but at this stage the -- BP started
06 taking over more of the -- the -- the plan
07 development and content. The first two --
08 the Stage I and II and the Stage III were
09 written kind of like -- you know, purely
10 SCAT. This now was -- had a more
11 environmental unit BP role in it, and they
12 took most of the lead in discussion with the
13 state.

Page 223:21 to 224:20

00223:21 Q. And this would be Exhibit 13004,
22 for the record?
23 A. Yes.
24 Q. And in here you discuss the SCAT
25 process, including methods used with respect
00224:01 to marshes, correct?
02 A. You know, in -- in a -- in a
03 broad sense, yes.
04 Q. Okay. Turn to Page 2, please.
05 And to be clear, this paper is written
06 specifically with respect to oiling that was
07 found as part of the Deepwater Horizon spill
08 response activity, the SCAT response
09 activity, correct?
10 A. This paper is on the -- you
11 know, the extent and degree of shoreline
12 oiling, as documented by SCAT surveys, yes.
13 Q. Specifically for the Deepwater
14 Horizon spill response program, correct?
15 A. Yes, that's correct.
16 Q. Okay. In the first column under
17 "Methods," approximately halfway down it
18 states, "In marshes, the emulsified oil
19 pooled on the surface with little penetration
20 into the marsh soils," correct?

Page 224:22 to 225:18

00224:22 A. Yes, that's -- you read that
23 correctly.
24 Q. (BY MS. KARIS) Now, you're the
25 lead author on this. In other articles you
00225:01 told me you were the co-author. What does it
02 mean to be the lead author on a publication?
03 A. That means that you wrote most
04 of the words.
05 Q. Okay. And did you write that
06 "In marshes, the emulsified oil pooled on the
07 surface with little penetration into the
08 marsh soils"?
09 A. I'd have to go back to the
10 original version to see if those were my
11 exact words. This paper went through a lot
12 of review. It went through a BP review, it
13 went through a Coast Guard review. And so
14 how these words got authored and edited by
15 other people --
16 Q. Okay.
17 A. -- but, yes, I'm -- I agree with
18 that statement.

Page 225:22 to 226:05

00225:22 Q. Whether you wrote it or not, do
23 you agree with the statement that "In
24 marshes, the emulsified oil pooled on the
25 surface with little penetration into the
00226:01 marsh soils"?
02 A. So I agree with that statement
03 from -- form -- from the information
04 generated by SCAT on the surface oiling in
05 the marshes, so...

Page 226:22 to 227:11

00226:22 Q. Middle of the first column.
23 A. On Page 8?
24 Q. Yes. See where it says, along
25 most of the marshes, the oil stranded along
00227:01 the marsh edge and bulk oiling usually spread
02 into the marsh no more than (about 10 to 15
03 meters) perpendicular to the shoreline due to
04 the small tidal rage -- range,
05 approximately .5 meters, the density of the
06 vegetation, and the residual oil's high
07 viscosity, correct?
08 A. Yes, that is -- that is a
09 correct statement based on, you know, the
10 information that we collected during the SCAT
11 surveys.

Page 227:18 to 227:21

00227:18 Q. (BY MS. KARIS) -- and bulk
19 oiling usually spread into the marsh no more
20 than about 10 to 15 meters perpendicular to
21 the shoreline, correct?

Page 227:23 to 228:06

00227:23 A. So along most of the marshes,
24 with that caveat, you know, the -- and the
25 key -- the key thing here is the bulk oil.
00228:01 So it doesn't mean that that was the limit of
02 the oil, but the heaviest bulk of the oil,
03 the bulk oil, which is thicker and heavier
04 and potential for cleanup extended about 10
05 to 15 meters into -- from the marsh edge into
06 the marsh platform itself.

Page 228:16 to 228:19

00228:16 Q. Okay. And so where it stranded,
17 then, for bulk oiling, that usually spread no
18 more than 10 to 15 feet perpendicular to the
19 shoreline?

Page 228:21 to 228:24

00228:21 Q. (BY MS. KARIS) And that was due
22 to small tidal range, density of the
23 vegetation, and the residual oil's high
24 viscosity, correct?

Page 229:01 to 231:17

00229:01 A. You know, we are making
02 generalizations over a shoreline that, you
03 know, again -- that -- you know, a thousand
04 kilometers of shoreline. So these are
05 general -- generalized observations.
06 Q. (BY MS. KARIS) Your generalized
07 observations that you put into a publication
08 as the lead author that was published in June
09 of 2013 made those conclusions, correct?
10 A. Yes, those are the general --
11 general observations.
12 Q. Okay. In the next column you
13 say, over 11 kilometer of the most --
14 kilometers "of the most heavily oiled marshes
15 in northern Barataria Bay were cleaned using
16 intensive manual and mechanical raking and
17 cutting methods to remove the oiled
18 vegetation mats and wrack, careful removal or
19 reduction of the thick oil layers on the
20 substrate, and limited application of loose,
21 organic sorbents."
22 You agree with that, correct?
23 A. Yeah, those treatment operations
24 were a part of the shoreline treatment
25 recommendation that were issued for northern
00230:01 Barataria marshes.
02 Q. Okay. And those were treatment
03 recommendations that you thought were most
04 effective for the northern Baratar- --
05 northern Barataria Bay marshes that were most
06 heavily oiled, correct?
07 A. Yes, we made that determined
08 through some very careful studies and
09 different -- comparisons of different
10 treatment methods. So we used what we
11 thought was the best method to remove the
12 most oil without -- with the least
13 environmental damage. But, of course, that
14 doesn't mean removal of all the oil and you
15 don't cause environmental damage.
16 Q. As of September 6th the oil had
17 stopped flowing from the Macondo well, prior
18 to September 6th, correct?
19 A. I believe they capped the well
20 on July 15th, 2010.

Q. Right. And so the well had stopped flowing for several weeks as of September 6th, correct?
A. Yes, that -- I don't know what -- what date it actually stopped, but --
Q. It was July 15th.
A. I know that was when they stopped the -- the -- the flow to the -- you know, they capped the well and were able to contain the flow, but I forget exactly when the, you know, Stage III plan came in effect, but that was when -- because the criteria was that there was little, minimal risk of re-oiling of the shoreline, fresh oiling of the shoreline.
Q. And SCAT had been in place for several months by September of 2010, correct?
A. Yes, they did our first survey in May 4th.
Q. And the marshes had been surveyed for several months as of September of 2010, correct?

Page 231:19 to 232:25

A. You know, marshes were really tough, because the -- you know, so SCAT teams had tried -- had gone out and done, you know, rapid assessments of the marshes and -- but, remember, the -- and we were operating Stage I and II and so the surveys were quick and mostly looking for bulk oil and operation was cleaning them then. So, you know, they surveyed the best they could during that time.
Q. (BY MS. KARIS) But if the oil is staying along the mar- -- along the edge of the marsh, that would be visible -- you would expect that to be visible even if you're doing, if you will, just a boat visual drive-by, correct?
A. Yes. In fact, most -- almost -- you know, almost all of the initial surveys in the marsh were done by boat, because they were done during high water and, you know, you couldn't get on the marsh because it was underwater, so all you saw was the front.
Q. Do you recall in September of 2006 saying that thus far you hadn't seen a bit of evidence the oil was getting deep into the -- really deep into the marshes? Yes or no.
A. No, because I did not say that in December -- September 2006. I think you meant September 2010.

Q. I'm sorry, September 2010.
A. Yes, that's right.

Page 233:10 to 235:20

Q. (BY MS. KARIS) Just asking, first, if you recall having made that statement.
A. I don't remember saying that -- I'm sure I said it, if you're reading it somewhere, but I don't recall. I'm -- I'm -- I'm sure -- I was asked many questions about the potential for oil penetration in the marshes, and I was -- I probably made that kind of statement. I don't remember.
Q. Well, was it true that as of September 2010 you hadn't seen a bit of evidence the oil was getting real deep in the marsh?
A. Within the context of that statement I believe that there were -- you know, a lot of people were -- their mental model of what the oil spill was going to do, it was going to go cover 100 percent of all the marsh, from the marsh edge all the way into the land. I don't care how many miles or kilometers it was. This oil was going to cover everything and then -- and so, you know, I -- I probably -- within that context, about people wanting to know, you know, about that, I said, you know, we don't see evidence of it -- of it getting that deep, you know, into the marsh and their idea of deep was kilometers and we had seen, you know, tens of meters.
Q. Is it accurate that the mental model, as you understood it and described it, of where the oil was going to go was not what you were actually seeing?
A. Whose mental model?
Q. The one you referenced.
A. Oh, yeah, well, people -- yes, that's right, yes. And we -- you know, we tried to inform folks, you know, researchers, you know, news -- you know, media about that we did not think -- we did not see evidence that the oil was going to have that deep, you know, kilometers of penetration into the marsh. And it -- and it never, you know -- and people just were so afraid that this was so much oil, it had to cover the entire marsh.
Q. And that's not what you were seeing, correct?
A. We saw penetration of bulk oil

on the order of tens of meters.
Q. 10 to 15 meters, correct?
A. 10 -- I mean, 10 to 15 is the average, so -- so it's on the range of 10 to 15, typically.
Q. And so is it correct that, as you said, people were just so afraid that there was going to be so much oil, what you were observing was on average where there was heavy oiling of marshes, that that was 10 to 15 meters in?

Page 235:22 to 236:05

A. Along -- on most of the marshes that was the typical width of the oiling band of the bulk oiling. But, remember, SCAT is only looking at, you know, actionable oil, you know, oil that would require cleanup. And, you know, I -- I've looked at thousands of SCAT photos, especially early on, and I don't remember seeing one that -- from someone who was standing inside the marsh.

Page 236:08 to 240:04

A. It was just estimates from the water, looking in.
Q. Do you remember water samples that were taken from the Gulf containing traces of oil?
A. You know, SCAT never took a single sample, so --
Q. Were you aware that there were water samples taken?
A. Oh, there was a large water sampling effort throughout the response, yes.
Q. And did you familiarize yourself with what the results of the water samples were?
A. I did not, no. I -- SCAT was a full-time job. We were there very stovepipe. You know, we did not -- we -- SCAT only cares about -- not only cares. But SCAT uses information on where the oil is on the water's surface and uses that help guide where oil might strand and therefore where we need surveys.
Q. I'm going to go back to your publication, which is Exhibit 13004. There is some tables on Page 5 of your PNOS publication -- PLOS publication, sorry, of July 13th under Figure 2, correct?
A. Actually, it's June 2013.
Q. I'm sorry, June 2013 --

A. Yes.
Q. -- under Figure 2 of Page 5, correct?
A. Yes.
Q. And this is intended to depict the kilometers of shoreline that were at -- well, tell -- you tell me, what is this intended to depict?
A. Well, this -- these are plots to allow visual comparison of the length of shoreline oiling by different SCAT oiling categories, based on SCAT data by state and, also, for what we call the maximum shoreline oiling, which is the -- the maximum amount of
00238:01 shore -- oil ever observed on that section of shoreline or segment.
And then these -- the SCAT oiling database that showed the kilometers of oil by those categories for one year and then two years post-spill, using the 1st of May as the anniversary date.
Q. Okay. And this includes marshes, beaches, and other, correct?
A. There is a second row of plots that -- that show the information, and this is only for the max oiling, that bottom one.
Q. Okay. And so the red indicates heavy, orange is moderate, yellow is light, green is very light, and then a lighter shade of green is trace, correct?
A. Yes, those are the standard SCAT colors used to denote the oiling categories.
Q. And in looking at marshes two years after the Deepwater Horizon incident, you were seeking to identify what remained with respect to extent and degree of oiling in marshes, correct?
A. That -- no, that information is not shown on these plots. The top row is
00239:01 just total shoreline oilings. We only have max oiling for marshes in that first -- and B -- 2B in the first column.
Q. I'm sorry, say that again.
A. Okay. So Figure 2B, which is the second row, this is just the max oiling for marshes --
Q. Got it.
A. -- broken down by state.
Q. Okay.
A. And then the next one is for beaches. And only by total shoreline oiling do we have it for year 1 and 2 after the spill.
Q. Okay. And with respect to marshes and the oiling that was observed, you concluded that natural attenuation was often

the recommended response in order to avoid further damage to those marshes, correct?
A. Yes. Marshes, there is lots of guidance about how much oil -- you know, there were -- in each of the shoreline cleanup plans there were criteria, you know, no-further-treatment guidelines or final shoreline cleanup end points that provided the guidance for what kind of oiling triggered treatment; and most of the time the shoreline SCAT teams did not recommend treatment in marshes.

Page 240:08 to 240:11

With respect the marshes, do you agree that natural attenuation was relatively rapid as the oil type hit an API gravity of 35?

Page 240:13 to 240:25

A. You know, oil type has a factor in terms of deg- -- degradation rates, of course, but that's just one of the factors. So where the oil was light and only in the vegetation, in those areas we tended to have very rapid natural weathering processes. And so -- but this oil was emulsified, and that slowed down a lot of those weathering processes. And so even -- regardless of the oil type, when the oil was thick on the marsh platform, persisted, and that's -- for years, and that was the oil that we eventually had to remove by manual and mechanical efforts.

Page 241:18 to 242:07

Do you agree that even during the spill only the most heavily oil soil -- I'm sorry, oiled salt marshes were intensely treated, approximately 1 percent?
A. Only the most heavily oiled salt marshes were treated, yes.
Q. And natural recovery was the preferred and appropriate approach for the vast majority of oiled marshes, correct?
A. You know, yes, we -- we treat marshes only when we are -- you know, when the oil is persistent and thick and causes impacts to other users. So, yes, most of the marshes, you know, were -- natural recovery was the response option.

Page 243:06 to 246:06

00243:06 Q. Let's turn, if you will, to
07 Tab 30 and mark it as Exhibit 13015. And
08 this does not have a Bates number. It's a
09 publicly available document. And you're one
10 of the authors?
11 A. That's right.
12 Q. Correct?
13 A. Yes, I am.
14 Q. And this is commenting on the
15 salt marsh oiling condition treatment testing
16 and treatment history for northern Barataria
17 Bay for the Deepwater Horizon oil spill,
18 correct?
19 A. I guess this is -- I would say
20 this is documenting the salt marsh conditions
21 and treatment.
22 Q. Okay. If you go to Page 2, it
23 says, Even during the spill only the most
24 heavily oiled salt marshes were intensely --
25 intensively treated, a small fraction
00244:01 (approximately 1 percent) of the nearly 796
02 kilometers, 560 -- I'm sorry, (495 miles) of
03 marsh shoreline that were oiled across the
04 Gulf States, correct?
05 A. Yes, and what that reflects is
06 the 1 percent was even though an STR was
07 issued for, you know, 7 something, 7.9 -- I
08 get miles and kilometers mixed up by what
09 number we're referring to, but, you know,
10 within that whole treatment area, when you
11 look at the -- the map that shows where all
12 the treatment recommendations could be
13 occurred, this was Scott Zengel's best
14 estimate of -- of how -- within that area of
15 how much of the -- how many meters here, a
16 patch here, a patch there was actually
17 treated.
18 Q. And then it goes on to say that
19 "Natural recovery was the preferred and
20 appropriate approach for the vast majority of
21 oiled marshes," correct?
22 A. Yes, that's -- that was the --
23 the recommendations of the SCAT teams, and us
24 as SCAT coordinators agreed with that.
25 Q. Let's go to Tab 39, please. And
00245:01 if we can mark this as the next exhibit,
02 13016. This is a document titled
03 "Appendix D: Buried Oil Report Louisiana of
04 Response Marsh 2014." Do you recognize this
05 document?
06 A. I'm not sure if I got this
07 document.
08 Q. Are you familiar with OSAT-3?

A. Was this Appendix D in OSAT-3?
Q. It is.
A. Okay. Yeah, I've probably seen it, yes.
Q. Okay. Are you familiar with the OSAT-3 undertaking?
A. Yes.
Q. What was -- what is your understanding of what the purpose of OSAT-3 was?
A. Trying to determine where the SOMs were, how the -- the SOMs are the submerged oil mats, and if -- where they were coming from and where they might be transported over time.
Q. So the purpose was to try and understand what, if any, SOMs existed; where they were coming from, as you said; and how they might be transported over time?
A. Yes, both along shore -- most -- only along shore. They could not figure out how to transfer -- how to -- predict how they might come on the beach.

Page 247:02 to 247:09

Q. If you go to the executive summary of Appendix 3 -- I mean, Appendix B, excuse me, of the OSAT-3, it begins by saying, "Extensive cleanup operations conducted along the Louisiana shoreline removed much of the residual oil from the Deepwater Horizon MC252 Spill of National Significance," correct?

Page 247:11 to 247:22

Q. (BY MS. KARIS) Very first sentence.
A. Yeah, I'm trying to read. But everything is in context. They're saying, well, generally they removed, you know, much of the residual oil, but there is no mass balance. So, you know, I wasn't involved in this, so I don't know -- you know, especially since my role has been less and less involved in terms of the, you know, pounds and, you know, everything else. So, you know, sure, they probably removed a lot of the oil.

Page 248:10 to 252:01

Q. Do you understand what a vast majority means?

A. A vast majority, in my mind, would be, like, 90 percent, 95 percent, 99 percent.
Q. Okay. Do you know whether 90 percent of the residual oil --
A. Was removed during cleanup? I have no idea. There is --
Q. Okay.
A. You know, people always ask me if I could do a mass balance for how much oil came ashore. We don't even know how much they removed. I mean, they report pounds. We don't even know -- there is no accounting of how many pounds were removed, you know, early in the response. I don't know -- I don't know how to answer that question.
Q. Okay. It goes on to state that, "Starting in November 2012 a series of initiatives were carried out in Louisiana to locate, delineate, and recover potential subsurface oil deposits in sandy shoreline areas that were conducive to their formation and persistence."
Do you see that?
A. You've lost me, I'm sorry.
Q. The third sentence of that first paragraph.
A. Third sentence. Oh, I see. You know, I was not involved in any of those. This was all an operational effort done by OSAT-3, did not involve SCAT. At that point in time, you know. It was driven by operations, SCAT teams. They even brought in extra SCAT people who were not doing SCAT to sort of do the descriptions of those things. It was more of an operation effort.
Q. Are you familiar with something called Snorkel SCAT?
A. Yes.
Q. What is Snorkel SCAT?
A. It's a misnomer, for sure, but -- because they don't snorkel, but, anyway, they -- SCAT teams and these are -- they had the full -- theoretically, the full representation that you would normally have in a SCAT team, but they wade out into water and do -- shovel digs and describe the oil that comes up in the little shovel. So it looks for oil that's below the intertidal zone, in the nearshore sub-tidal.
Q. On Page 4 here of Exhibit 13016, middle of the first paragraph it says, "From November 2012 to November 2013 40,189 auger holes and Snorkel SCAT pits were excavated along shoreline segments at Elmer's Island, Fourchon Beach, Grand Isle, Grande Terre 1,

Grande Terre 2, West Chaland, and West" -- is it Timbalier?
A. It's West Chaland and West Timbalier.
Q. Okay. Were you involved with those operations?
A. No, I was not.
Q. Okay.
A. You know, by then I was -- I went -- I went remote in October of 2012, and this -- all -- you know, this -- all this effort to do these -- these operations were conducted under operations, with SCAT participation, but it was not a SCAT-led initiative.
Q. Were you apprised of what the findings of those 40,189 auger hole and Snorkel SCAT pits were that were excavated were for those areas?
A. The GIS folks who were -- or the database, the SCAT database folks were generating maps from these efforts and then the SCAT team leads were doing the areas for treatment and everything else under the STR, but I had almost no participation in that. That's just something you do on scene.
Q. Okay. Are you familiar with the buried oil project?
A. You know, only by name, and, again -- again, it was something that came out of OSAT-3 and was implemented by ops, but, you know, by then my role in all this was narrowing down to sort of dealing with the inspection reports.

Page 254:15 to 255:17

Q. Okay. You have no reason to disagree, though, that that was the objective of the buried oil project?
A. Oh, yes, I mean, I can -- again, I think I told the story about some of the BP operations folks said they were -- you know, they realized they had to go out and find the rest of this buried oil, because otherwise they would be here forever, waiting for another hurricane to expose a little more of it.
Q. OSAT-3 was put in place, in part, as a government effort, was it not?
A. OSAT-3 was -- was put in place primarily as an eastern states effort, yes, but -- sure, to -- because they had the same problem. You know, Louisiana had oil buried in the beach, was it going to continue to

come out and, you know, when will we ever get to go home. And the eastern states had the SOMs and, you know, they kept washing -- if we couldn't figure out where they were and dig them up and get them out of there, they would have oil washing ashore for years to come. They couldn't go home, either.
Q. And so 40,189 auger holes and snorkel pits were excavated as part of that OSAT-3 effort, correct?

Page 255:19 to 259:14

A. Yeah, so this is in the Louisiana buried oil report, and so, you know, that's what they -- that's what's written.
Q. (BY MS. KARIS) But you have no independent knowledge of any of that?
A. I'm sorry, I don't.
Q. All right. On the next page there is a reference to Louisiana Augering and Sequential Recovery, LASR, Snorkel SCAT initiative. Are you familiar with that initiative?
A. You know, LASR and BOP were all things that were done, you know, again, after my role as an active sort of SCAT coordinator and within the directing operations. So, you know, BOP and LASR, I have the same level of familiarity with both of them.
Q. All right. And there it says under LASR, which was conducted between January 5th of 2013 and June 30th of 2013, that involved 14,000 5 -- 454 auger holes in super-tidal and upper intertidal areas of Port Fourchon -- I'm sorry, of Fourchon Beach, Elmer's island, Grand Isle, Grande Terre 1, Grande Terre 2. Any involvement with that?
A. You know, no.
Q. Okay.
A. That was, again, the same sort of thing, that they -- was an operations activity. SCAT people were involved in helping to describe the oiling in those areas. SCAT data managers helped generate the maps to show those things, but I was no longer involved in any of the decisions associated with that. So I'm glad they did it. It was a good -- you know, we needed to find that oil and dig it up.
Q. You agree it was a good program and good strategy, correct?
A. Yes, about time.

Q. You mentioned "about time," correct?
A. About time we get aggressive and dig up the rest of the oil, yes.
Q. Okay. Let's look at Tab 40. Were you aware of -- are you aware of any efforts by the state of Louisiana or any actions by the state of Louisiana that prevented earlier removal of any of the buried oil?
A. The state of Louisiana initially only allowed manual removal methods. Now, you know, they -- they didn't say don't remove the buried oil. They just said we just want you to use manual methods, and you can only do so much with manual methods.
And then later on when they -- when the extent of buried oil became a problem, then they -- they eventually allowed mechanical removal and then eventually wanted a lot of mechanical removal.
Q. Okay. So originally they objected to it --
A. You know, these beaches -- these beaches are erosional. You think, the oil came ashore, got buried. Oh, storm is going to wash it all out. We don't have to dig it up. It will be a natural process. Of course, how many hurricanes did we go through and we still had buried oil in 2013. So now they wanted to get the oil out.
Q. So while the state of Louisiana originally objected to mechanical removal, they later moved in that direction, correct?
A. That's right.
Q. In October of 2010 you were concerned that if you forego mechanical removal of oil, that will leave a lot of buried oil on sandy beaches in Louisiana, correct?
A. Yes, it was clear that the oil had come ashore during -- when the beaches were kind of erosional, came ashore over a three-month period, got buried multiple places in layers and the storms washed up high and got buried and beaches secreted. And so the oil was in lots of places on these beaches and therefore buried deep, and the -- and the removal rates would be slow except by erosion.
Q. It was the state of Louisiana that prevented the removal of that oil using mechanical means in the 2010 time period, correct?

Page 259:16 to 260:10

00259:16 A. They -- they only allowed
17 mechanical removal on, you know, Grand Isle,
18 the amenity beach there, and not even the
19 state park. So they did do a lot of
20 mechanical removal there, but not -- you
21 know, initially their goal was -- the mental
22 model was that we were going to, you know,
23 try to remove it from the surface, it would
24 be eroded, it wouldn't persist. But that
25 was -- that didn't turn out to be the case.
00260:01 Q. (BY MS. KARIS) What you wrote
02 is it is clear they will not, in capital
03 letters, allow any mechanical removal of
04 buried oil, correct?
05 A. I -- within context, you know,
06 they had to allow mechanical removal on
07 beaches of Grand Isle, and so these were the,
08 you know, other beaches over which they had
09 control, which were essentially the
10 Grande Terres.

Page 261:09 to 262:03

00261:09 Q. (BY MS. KARIS) What you wrote
10 here is, quote, "The State wants to re-write
11 the Stage III Shoreline Treatment Plan to
12 specifically state no mechanical removal and
13 reliance on natural recovery rates for oiled
14 beaches in Louisiana," correct?
15 A. That is what it says, but that
16 is not correct, because I have already told
17 you that the state allowed mechanical removal
18 on the sand beaches of Grand Isle.
19 Q. Okay.
20 A. That was -- that was not one of
21 the areas where they didn't want to use
22 mechanical.
23 Q. With the exception of Grand Isle
24 you wrote, "The State wants to re-write the
25 Stage III Shoreline Treatment Plan to
00262:01 specifically state no mechanical removal and
02 reliance on natural recovery rates for oiled
03 beaches in Louisiana," correct?

Page 262:05 to 262:21

00262:05 A. You know, I'm talking about
06 buried oil, okay.
07 Q. (BY MS. KARIS) Yeah.
08 A. And so, you know, the state --
09 you know, that was their plan. You know, one
10 of the state agencies was adamant. You know,
11 these are the people who, you know, are in

charge of beaches; and they were afraid that the beaches would be, you know, damaged by deep -- you know, mechanical recovery, and so they -- you know, they were pushing for no mechanical recovery.
Q. And as a result of them pushing for that, certainly up through October of 2010 there was no mechanical recovery, correct?
A. Yes.

Page 264:02 to 264:22

Q. (BY MS. KARIS) Do you agree, Dr. Michel, based on your background and experience, that mechanical removal of buried oil on sand beaches in Louisiana would have been an effective tool to remove oil?
A. You know, we use mechanical removal techniques on oiled sand beaches when we have to. We know it's disruptive. And so, you know, back then under the conditions they knew they were, you know -- I think even with SCAT we didn't know how much -- how much buried oil there was and so I saw no need to restrict mechanical removal, but, you know, it's -- I don't -- it's not my resource. I don't live here.
Q. Based on what your background, experience is with response activities for shoreline, do you agree that mechanical removal would have been an effective tool for removing buried oil from sand beaches in Louisiana?

Page 264:24 to 265:01

A. You know, all the tools in the toolbox could have been used in -- in Louisiana.

Page 265:15 to 266:05

Q. Dr. Michel, you were involved, you told us, in the SCAT program response for the better part of two years in Louisiana, correct?
A. I was -- I rotated through.
Q. Right.
A. And so, you know, I was -- I had anywhere from one to -- there were either -- there was a minimum of two people and up to four people rotating in that position. So I was one of them during that period, yes.

00266:01 Q. The SCAT program was a
02 particularly valuable and effective process
03 for responding to the Deepwater Horizon
04 spill, correct?
05 A. Of course we would say that.

Page 267:03 to 267:04

00267:03 Q. And the SCAT surveys that were
04 done, those were done aerially, correct?

Page 267:06 to 267:16

00267:06 A. No, the SCAT survey -- aerial
07 SCAT surveys were done just to sort of
08 characterize where the oil was. All of the
09 estimates of the -- of, you know, filling out
10 the forms and doing the documentation was
11 done from boats or by foot.
12 Q. (BY MS. KARIS) Okay. So the
13 boat SCAT surveys, those were done for
14 purpose -- in part, for purpose of
15 understanding how far into the marsh the
16 oiling had extended, correct?

Page 267:18 to 269:11

00267:18 A. You know, in general, but,
19 remember, SCAT, especially early on when
20 there was so much oil in the marsh, they did
21 not do transects and measure that with -- you
22 know, at regular intervals. They were in an
23 airboat going along the end of the marsh,
24 standing up trying to look to see what they
25 could see from the boat, making some
00268:01 estimates, coming up with an average width.
02 Q. (BY MS. KARIS) And then --
03 A. Of bulk oiling, yeah.
04 Q. You said early on. But then
05 there was resurveying done of those marshes,
06 correct, where oiling had been identified,
07 correct?
08 A. Yes, over time these areas were
09 resurveyed.
10 Q. Okay.
11 A. Especially with -- remember that
12 in June -- no, I think it was June 25th there
13 was a Tropical Storm Bonnie that generated a
14 bunch of waves, knocked all the vegetation --
15 there was heavily oiled areas. It knocked
16 the vegetation down and -- and created a big
17 mat. And so they -- then now they could
18 see -- you know, at that point in time, you
19 know, which was after a hurricane or big

waves came through, they could better estimate the bulk oiling.
Q. Okay. And you wrote this publication in June of 20 -- or this publication was issued in June of 2013, correct?
A. That's right, it was originally submitted in --
Q. Okay.
A. -- November 2012.
Q. Okay. At least as of November of 2012 based on all the surveys, including the re-inspections that we've just discussed, what you wrote was that the bulk oiling usually spread into the marsh no more than about 10 to 15 feet perpendicular to the shoreline, correct?

Page 269:13 to 269:23

A. You know, as I said previously that, you know, based on the SCAT surveys and the nature of the surveys and the intent of the surveys, that is what the SCAT team would write down their estimate width of the oil band of the heaviest oiling.
Q. (BY MS. KARIS) You're not aware of any other data that was collected showing oiling in these marshes that extended more than 10 to 15 meters perpendicular other than what's cited in your report here, correct?

Page 270:03 to 271:17

Q. (BY MS. KARIS) Go ahead.
A. But I can respond that, you know, there are lots of other papers that people have gone out and done surveys and they have documented oil, you know, and some of them -- I don't -- I --
Q. You haven't gone out and looked at that?
A. No, I have not personally gone out and looked at that.
MR. ZEVENBERGEN: Can the witness please be allowed to answer the prior question?
Q. (BY MS. KARIS) As the SCAT coord- --
MR. ZEVENBERGEN: Could the witness please be allowed to answer --
Q. (BY MS. KARIS) Were you finished?
MR. ZEVENBERGEN: -- the question that she was in the middle of the answer when you

asked her with the next question?
Q. (BY MS. KARIS) Go ahead.
A. But I have read other reports published in the literature where the width of the oil recorded by other researchers, mostly university researchers, was much wider. That's -- that's all I can say.
Q. But what you published and put your name on indicates that bulk oiling usually spread into the marsh no more than 10 to 15 meters perpendicular to the shoreline, correct?
A. As I said previously, within the context of the data collected by the SCAT, you know, from an operations perspective, that is what the SCAT teams reported, yes.
Q. The SCAT process is complete, correct?
A. Like, over?

Page 271:19 to 271:22

Q. (BY MS. KARIS) Yes.
A. Yes, there is -- there are no more SCAT teams, no more SCAT program. That part of the BP Unified Command has shut down.

Page 272:12 to 275:09

Q. I'd like to begin by having you explain with more precision just how long you were on site in your capacity as NOAA SCAT coordinator. When did you begin serving as a NOAA SCAT coordinator?
A. I arrived in Houma at the Incident Command Post on the 28th of April, 2010. I stayed for about 24 days and then started a rotation where I would -- when I considered myself to be unseen, I was working actually in Houma at the command post or eventually in New Orleans working on site in New Orleans.
After a while the rotations were set up where the SCAT coordinator was working two weeks on and two weeks off, and I had a single rotation partner for a while. And then starting later in, I think, 2011 there were four SCAT -- NOAA SCAT coordinators for Louisiana who were rotating on a -- a week on every month basis. So my time I was spending in Louisiana, you know, went from 50 percent down to more like 25 percent per month --
Q. And --
A. -- over that period.
Q. When did you transition from

50 percent with one partner to 25 percent with three partners, approximately?
A. Approximately, sometime in 2011.
Q. And was there a point when your rotation stopped altogether?
A. Yes, in October 2012 is when I started to work a hundred percent remotely, though I did come in to New Orleans once or twice after that period for special meetings.
Q. Let's go back to the beginning of that period when it was you and one other person rotating. During that period when you were on scene, were you the NOAA SCAT coordinator for Louisiana?
A. Yeah, when I was on scene I was the -- there was only one NOAA SCAT coordinator for Louisiana, and that was me when I was present.
Q. And when you were not present, who was the NOAA SCAT coordinator for Louisiana?
A. My rotation partner, which was a man named Scott Zengel.
Q. When you moved from rotating with one other person to rotating with three other people, did it work the same way?
A. It worked similar, except we were all spending one week a month. You know, there were four of us, each spending a week a month. And we were rotating with two other NOAA people who came out of Seattle.
Q. When you rotated during these time periods off site, were you no longer functioning do -- during those periods as the NOAA SCAT coordinator for the Deepwater Horizon incident?
A. Well, as the most senior NOAA SCAT coordinator for Louisiana, when the other SCAT coordinators were there, they would reach back to me occasionally for clarification. You know, you were here, you know -- you can always pass -- you can pass on a certain amount of knowledge, but you can't tell everybody everything you know. So I was often asked to help support them with some -- you know, whatever issues were at the moment.

Page 275:23 to 276:14

Q. All right. Earlier today you were asked a number of questions about particular individuals and whether you regarded them as professional or competent or both. Do you recall that?

A. Yes, I do.
Q. Do you always agree with other individuals who you regard as professional or competent or both?
A. Especially in the Shoreline Clean-up Assessment Technique world, you know, there are certain people which I have often disagreed.
Q. In this particular case did you sometimes disagree with the individuals named this morning who you regard as professional and/or competent?

Page 276:16 to 278:05

A. You know, shoreline -- yes. Determining shoreline cleanup priorities, methods, and the process and how you interact with stakeholders is complex and for this was very difficult and sometimes very confrontational and sometimes the people representing BP, I disagreed with what they were doing. Specifically, you know, some of the people that were involved in the SCAT technical adviser role.
Q. (BY MR. ZEVENBERGEN) Let me ask you some general questions about just how SCAT works. I'd like you to begin by describing some of the SCAT techniques that are used for documenting oiling in marshes.
A. Okay. You know, particularly for the Deepwater Horizon, because of the, you know, different phases of -- of the response and -- and the continuous release and the fact that the -- you know, the oil came ashore during that time where we have high tides are in the middle part of the day when SCAT is out there doing the survey, the SCAT surveys were restricted to sort of what you can see, you know, during high water, from the edge of the marsh and like -- I think I said previously, I've looked at thousands or maybe tens or maybe even hundreds of thousands of SCAT photographs, and all of -- almost every photograph I've seen has been from the marsh edge looking inland, you know, from the early -- the early stages particularly were all from boats looking into the marsh, at the marsh, what you could see just from the water edge.
Q. With respect to the SCAT surveys in Louisiana for marshes, do you have a guess as to how many of those surveys were done by boat as opposed to being done just by access via land?

Page 278:07 to 279:24

A. All of the marsh surveys were done -- you know, were accessed by -- well, not all of them. I'd say 99.9 percent of them were done by -- from -- from getting to the shoreline by boat, because the only place that you can drive to is Grand Isle and there is not many -- and parts of Fourchon and Elmer's, and there's not many marshes in those areas. So the rest of it was done by getting, you know, to the shoreline by the boat.

During the -- you know, when there is high water in the marsh, all of the surveys done in the summer were done from the boat. You couldn't get to the marsh. Later on in the fall the tides are much better, the water levels are much better. We have winds out of the north that sort of empty the water out of the marshes, where the marsh platform is exposed, and then the SCAT team can get out, walk along the shoreline.

Now, remember, you know, SCAT had their own BMPs that we had to follow, and so we were not supposed to walk on the marsh excessively. So they would get out, walk, get in the boat, check things out, do spot inspections. So it wasn't like, you know, on a beach you can walk -- you can go to one end of the beach and walk and continuously zigzag, you know, cover the whole area. In marshes you can't do that because you're not supposed to cause the damage from trampling all over the marsh. So SCAT -- the SCAT surveys in the marshes were probably the most difficult to do in a very comprehensive manner because of all those limitations.

Q. (BY MR. ZEVENBERGEN) So based on your description of those techniques that were used in Louisiana for the -- the marsh surveys, are there limitations inherent in those techniques that may result in some marsh oiling not being found by the SCAT teams?

Page 280:01 to 281:07

A. I can say that the -- you know, the SCAT teams, when they -- considering that the variability of the degree and width and height and everything of oil on a marsh shoreline, which is really high variable because of the nature of that shoreline

and -- and oil is not a uniform band, you know, the teams, you know, did the best job they could, you know, by going along shoreline, coming up with an average estimate of the -- the width of the oil band. And so -- so they -- you know, and they -- they're thinking actionable oil, you know, they can't -- they don't -- they didn't make very many transects into the marsh to see, you know, here's the black oil they could see, then beyond that there is some lighter oil. They didn't make those kind of observations because after -- at some point after -- the width -- they want to be accurate with the width as best they can, but the width is not a critical measure that we do -- we do treatment if it's so wide, so they want to make sure it reaches that width end point. There is no width end point. They just want to be able to document the oiling conditions as best they could under those conditions. So I would think that a lot of SCAT teams would not want to get into that marsh oily area to try to document lighter oil beyond what they could see from the boat.

Page 282:01 to 283:14

Q. (BY MR. ZEVENBERGEN) So, Dr. Michel, if you would turn to Tab 5, I think, which is the 20 -- June 2013 article that -- for which you're the lead author. And if you would turn to Page 8, please. Earlier counsel for BP pointed you to the statement that refers to the depth of bulk oiling penetrating into the marsh more than 10 to 15 meters. Do you see that?

A. Yes, I do.

Q. Okay. Does -- first of all, does that depth of penetration refer to all of the oiling or just the bulk oiling?

A. It -- you know, we specifically called out that as the bulk oiling because that is essentially what the SCAT teams would document.

Q. Okay. And is the information that's published in this article taken from what the SCAT teams developed, or does it include additional interpretations by you or adjustments by you of information developed by the SCAT teams, specifically with respect to depth of oiling?

A. These are the data come from the -- you know, the SCAT teams do the

surveys, they fill out a form, and these are the numbers that they would put on their form in terms of, you know, the -- the general, average width of the -- the depth of the oil penetration into the marsh that they could see.
Q. Okay. And based on your understanding of the SCAT techniques that were used in this instance, do you have a view as to whether the depth of penetration that was recorded would have tended to underestimate or overestimate the depth of penetration of oiling?

Page 283:17 to 284:04

A. I can say that, you know, that this was the -- you know, these numbers that the SCAT teams filled out were based on, you know, their visual observations of the, you know, width of the bulk oiling. And so -- so they stopped there. So any additional oiling they would not have included in those estimates.
Q. (BY MR. ZEVENBERGEN) And based on your experience with SCAT, is it -- do you have a view as to whether there would have been additional oiling beyond the bulk oiling?

Page 284:06 to 284:25

A. My experience at -- you know, at -- since I've been going to spills is that the oil does not stop suddenly where -- at the edge of the bulk oil. There -- there is a transition zone, a gradient from heavier to lighter, in all environments.
Q. (BY MR. ZEVENBERGEN) The next topic I'd like to discuss with you that was raised earlier with you was the question of cleanup end points. And my understanding of your testimony today is that when a SCAT segment meets defined cleanup end points, then it passes out of active response. Is that a correct understanding?
A. Yes.
Q. Okay. When a SCAT -- then when a segment has -- has met cleanup end points and passed out of response, does that mean that there is no longer any oil remaining in that segment?

Page 285:02 to 285:23

00285:02 A. When a -- when a segment is
03 moved out of response, it means it meets the
04 cleanup end points; and in Louisiana that was
05 mostly -- you know, cleanup end points on
06 beaches was less than 1 percent on
07 non-amenity beaches and all the cleanup
08 criteria that are listed there. But -- and
09 so I'm not going to speak to the eastern
10 states because I was not part of that
11 process. So therefore I'm -- I -- that -- it
12 would not mean that there was no visible oil,
13 you know, that was not part of the criteria.
14 Even if it had up to 1 percent oil, it was
15 still moved out of the response because it
16 met the end points for the surface oil.
17 Now, there were still end points
18 for the surface oil as well, and those were
19 much larger than no visible oil.
20 Q. (BY MR. ZEVENBERGEN) So for
21 beaches that were just under 1 percent of
22 visible oil, would you regard that as a clean
23 beach?

Page 285:25 to 286:09

00285:25 A. Less than 1 percent oil is
00286:01 still -- you know, if you look at the -- the
02 little estimators we used to help present
03 what that is visually, it looks -- you know,
04 it's -- it's -- you know, you look at a
05 square and you can look at 1 percent of that
06 and that was sprinkled over 1 square meter,
07 that's still considered to be, you know,
08 lots -- not lots. Visible oil on the beach.
09 It's not clean.

Page 287:01 to 287:07

00287:01 clarification. When a decision is made not
02 to actively treat a marsh, but, rather, to
03 allow the oil to naturally degrade, is that
04 the same as the determination that there has
05 been no impact to the marsh from the oil or
06 that there will be no ongoing impact to the
07 marsh from the oil?

Page 287:09 to 287:16

00287:09 A. No. The decision not to do any
10 further, you know, treatment is to avoid
11 additional impact to the marsh associated
12 with any kind of removal actions, and so the
13 marsh -- you want the marsh to recover, you

know, through the natural processes. You just don't want to cause more injury by doing additional -- or any treatment.

Page 287:22 to 288:08

Before we get to that topic, I want to follow up on the question of whether the SCAT process would result in identification of all visible oil. You testified earlier about some of the limitations in -- in the SCAT techniques that are used to identify oil in the marshes. Based on your experience with the Deepwater Horizon spill, is it possible that there were areas of marsh in Louisiana that the SCAT -- that were oiled that the SCAT process did not identify as oiled?

Page 288:11 to 290:01

A. Well, in fact, I had to deal with that issue directly, because the -- in February 2014 the FOSC asked me to develop a survey plan to survey some -- come up with a -- address an issue that he had found out about, that there were NRDA survey areas where the NRDA teams had found oil where SCAT had not looked. They -- the NRDA people had done an overlay and showed us that. So they -- the NRDA people gave SCAT the map that shows where they had found oil, and the captain said I need to -- I want SCAT to go back and look at some of those. And I said, okay, well, you know, most of that was very light. It didn't make much sense to go back and look at those.

But so I wrote a plan for -- for SCAT teams to go out and do a survey all those ones that NRDA had found that SCAT had not found that were heavy and moderate, and there was, you know, 3 or 4 miles of that. And then we -- I said we would inspect 10 percent of all the other ones. SCAT teams went out and looked at all those now -- you know, it was three and a half years later after the NRDA had done it. So that was only -- that was the other, you know, issue that I did -- you know, was dealt with. And out of the SCAT teams surveyed all those, and I think they found 4 square meters of oil in -- you know, remaining as of February or March, whenever they went out in 2014 out of the 12 miles of shoreline that they surveyed.

Q. (BY MR. ZEVENBERGEN) And that

was the status in 2014?
A. That's right.
Q. Based on your work in this matter, is it possible that there are areas of oiled marsh that were not found either initially by the SCAT teams or by the NRDA teams?

Page 290:03 to 290:15

A. You know -- yes, because the SCAT team -- you only had so many teams and you could only go to so many areas and the oil comes ashore and then it gets washed off. You know, it's a very dynamic environment. So essentially, you know, the way I had -- in that -- those dynamic environments, you know, SCAT cannot conduct surveys comprehensively in enough area to get a complete snapshot in time. So there is a possibility that there would have been areas that were oiled that SCAT did not document as being oiled because by the time SCAT got there, there was no oil.

Page 291:01 to 293:07

Q. (BY MR. ZEVENBERGEN)
Dr. Michel, now I want to get to my last area of inquiry, which is not what SCAT does, but what SCAT does not do. So on that subject, is it the mission of SCAT to find oil that's entrained in the water column?
A. No, and especially for Deepwater Horizon SCAT was not allowed to take any samples. So they didn't even take samples that were used to document that.
Q. What about looking for oil that's not in the water column, but on the bottom sediments, below the intertidal zone, is it the job of SCAT to find oil in those locations?
A. In Louisiana that -- you know, that -- that was not SCAT's responsibility. You know, SCAT is a shoreline -- shoreline is considered the intertidal zone. Now, later on these special -- even though they were called Snorkel SCAT teams, they were out to try to find oil in the nearshore sub-tidal for operational removal. So I consider that to be almost -- you know, all of that SCAT data for Snorkel SCAT never got incorporated into the -- you know, these shoreline miles and maps that -- that are reported as part of the SCAT database. You know, those -- those -- that Snorkel SCAT does not go into

the SCAT database because there is no -- it does not match the traditional SCAT survey data.
Q. In places where -- strike that. In habitats that have been oiled, but where the oil is not observable to the eye, were there techniques used by the SCAT teams in the Deepwater Horizon spill to locate that oil?
A. No, that's why we -- we have the -- the -- we don't say there is no oil. Our terminology is NOO, no oil observed or no visible oil. And so trace amounts, if it wasn't visible, wasn't tactile, it -- it was recorded as no visible oil or no oil observed.
Q. Is there anything that the SCAT process does to locate buried oil?
A. SCAT is supposed to go out and, you know, dig pits to look for buried oil and -- and they did to some degree, but the oil was -- you know, so it was buried so deeply in a lot of places below which they could survey. So even though they looked for it, a lot of times they did not find the buried oil using the traditional SCAT methods for the first year or two. That's when the operations went to the augering.

Page 294:01 to 296:07

Q. Do you know what the buried oil project that was part of OSAT-3 was intended to do?
A. Yes, and -- and it was to look for buried oil.
Q. Okay.
A. But it was not a SCAT process, I guess I should say.
Q. So whether we call it a SCAT process, there was a process that was used to identify buried oil, correct?
A. Yes, especially in 2012 and '13, yes.
Q. Thank you. And LASR, we talked about LASR.
A. That was an operational effort to locate and remove as they locate the buried oil, yes.
Q. Thank you. Now, you testified about the 3 to 4 miles that were surveyed in 2014 at the request of the FOSC. Do you recall that testimony?
A. Yeah, it was about 12 miles that were totally removed.

Q. I'm sorry, 12 miles.
A. Yes.
Q. And I think you testified that there were 3 to 4 square meters of oil identified, correct?
A. When they went -- SCAT went back and surveyed in, you know, February and March 2014 there was -- in those entire area there was only about 4 square meters of oil observed in, I think, two or three places.
Q. Was that oil fingerprinted?
A. Yes, it was.
Q. Okay. And to the extent -- do you know how much of that 3 to 4 square meters of oil was fingerprinted and found to be Macondo oil?
A. I recall all of it.
Q. Okay. And do you know whether BP, in fact, went in and assisted in cleaning up that oil?
A. No, there was no further treatment that was recommended for those.
Q. Thank you. Do you know why there was no further treatment recommended for that oil?
A. Yeah, because it met end points.
Q. And those would be end points that the FOSC had signed off on, correct?
A. Yes, they were the FOSC end points.
Q. And even after you identified that buried oil, the FOSC determined no further treatment was necessary, correct?

Page 296:09 to 297:04

A. Yeah, the SCAT teams didn't recommend -- recommend any treatment and the -- you know, these weren't official SCAT surveys, you know. They were -- well, maybe -- I can't remember if they were or not. But, yes, no -- yeah, nobody recommended any treatment and the FOSC agreed.
Q. (BY MS. KARIS) That would include you, you didn't recommend any treatment for those?
A. No, I did not.
Q. Thank you. Now, are you familiar with the concept of background oiling?
A. Oh, yes.
Q. What is background oiling?
A. That's a good question. That is the amount of oil that's present on a

shoreline from, you know, chronic oil releases.

Page 297:17 to 297:19

Q. Were the beaches cleaned of any and all oil before the Deepwater Horizon incident took place?

Page 297:22 to 298:15

A. No, we dealt -- talked about this in SCAT, because background -- no visible oil, that was the issue, well, no more oil than background. So, yeah, there is a background. It's a lot less than it used to be.

Q. (BY MS. KARIS) You would agree that as part of -- I'm sorry, that the Gulf shorelines had a background oiling rate before this incident ever took place, correct?

A. You know, there are published reports, but some of them are pretty old, that in -- you know, people at LSU did some studies in 1990 and they looked at the background rate, but that was the only one that was published for the Gulf that was in -- and that was 10 years old, 20 years old.

Page 299:01 to 300:25

Q. (BY MS. KARIS) Well, you agree, though, that background oiling was part of the consideration because there was already oil in place before this incident ever took place?

A. Right, and so the cleanup end points said no oil that is from the MC252 Macondo well. So that was the basis -- you know, if they found some oil -- there is lots of grease balls and things out there that people find all the time. SCAT teams could officially say that this looked like Macondo oil and they did a test to say -- you know, to fingerprint it. SCAT teams are 95 percent accurate. So SCAT felt like they could say, you know, the oil that they counted in terms of percent and everything was things that they considered to be Macondo oil.

Q. And so, again, the Stage III plan was written to account for the fact that there was background oiling in place,

correct?
A. That's right. And the end points where always no more than the amount -- you know, Macondo oil, right.
Q. Now, you were asked early on about the marsh surveys that were done. Do you recall that?
A. Yes.
Q. Okay. And if you turn back to Tab 5, please.
A. Page 8?
Q. Not yet. Let's talk about what the objective of this paper was that you wrote that you were the lead author on. Second column, you wrote that the objective of this paper -- "objectives of this paper are to provide information on the maximum extent and degree of shoreline oiling from the Deepwater Horizon spill as observed and characterized through methodologies applied for response purposes," correct?
A. Yes, that was, you know, with -- within that context of response, right.
Q. And, also, "as well as shoreline oiling conditions at one or two years post-release," you want to identify what the maximum extent and degree of shoy -- I'm sorry, shoreline oiling was for conditions one or two years after the release, correct?

Page 301:02 to 302:13

A. Well, there is one or two years, there is the max oil observed, there is the one year and two-year post.
Q. (BY MS. KARIS) And you were asked about the marsh surveys that were done. And, to be clear, you testified earlier that early on when they did the marsh surveys, there were limitations in the observations; but then you said Hurricane Bonnie came through. When was Hurricane Bonnie?
A. I believe it was June 25th.
Q. And at --
A. 2010.
Q. -- 2010, exactly.
A. Correct.
Q. After Hurricane Bonnie came through, you testified that that allowed much better visibility into the marshes, correct?
A. Yes, it did.
Q. Okay. And if you go to Page 2, you agree that the SCAT surveys that were conducted after Hurricane Bonnie consisted of a team walking the shoreline or transitioning

close to the shore by boat to document oiling conditions using standard terms for oil character, thickness, percent distribution, width, and length of the oil bands, tidal zone, and where oil bands were observed, the average and maximum size of the oil deposits, correct?
A. Oh, yeah, the average size and maximum size of the oil deposits are individual, like, SRBs, SRPs. So they are tar ball. So you speak SR -- SRBs and SRPs.
Q. Well --
A. That -- the maximum size -- that refers to these individual oil particles.

Page 303:16 to 306:01

Q. But you agree that the purpose of the boat surveys was to identify whatever the extent of oiling was that was observed.
A. Along the shore and, you know, the length, you know, they would make estimates of the length and the width, yes.
Q. Now, did you ever go on the surveys?
A. I did not con- -- conduct a single -- go on a single SCAT survey.
Q. You were asked about what the SCAT surveyors recorded. You were not personally involved in those SCAT surveys to determine how far in they could see, correct?
A. I did not go on a SCAT survey while they were doing those surveys in the marshes, no.
Q. Did you ever interview any of the surveyors after they conducted their surveys?
A. Every day --
Q. Okay.
A. -- when I was there.
Q. And did you conclude that -- based on your interviews that the field data that was collected from these surveys went through rigorous, automated, and visual checks to ensure data quality?
A. Yes, every form -- when I was there the SCAT cor- -- every SCAT coordinator, the team leads would turn in to the SCAT coordinator and they would make sure they were filled out completely and all the fields were -- you know, everything was filled out.
Q. And that there was a rigorous automated and visual check done in order to ensure data quality, correct?

A. And that -- and that means the data quality transfer from the form to the database. There is no way for us to check to see if they -- if someone estimated -- you know, wrote down 5 and they meant to write down 10, for example.
Q. It also looked at the objectiveness of the field data, recognizing that large -- a large number of stakeholders were going to rely on that data, correct?
A. Let's see, you have to point me --
Q. It says, There is a large number of stakeholders that relied on the quality and objectiveness of the field data to support decision-making at all levels of the response, correct?
A. Yes, that's why it's important to have all the representatives and get consensus, because, you know, they are just collecting, you know, objective data in the field and they're being used for decision-making elsewhere.

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF LOUISIANA

IN RE: OIL SPILL	)	MDL NO. 2179
BY THE OIL RIG	)	
"DEEPWATER HORIZON" IN	)	SECTION "J"
THE GULF OF MEXICO, ON	)	
APRIL 20, 2010	)	JUDGE BARBIER
	)	MAG. JUDGE SHUSHAN

Deposition of JACQUELINE MICHEL, Ph.D., taken at Kirkland & Ellis, 655 Fifteenth Street NW, 3rd Floor, Washington, D.C., 20005, on the 1st day of August, 2014.

THE STATE OF LOUISIANA :
PARISH OF ORLEANS :

I, PHYLLIS WALTZ, a Certified Court Reporter, Registered Professional Reporter, and Certified Realtime Reporter in and for the State of Louisiana, do hereby certify that the facts as stated by me in the caption hereto are true; that the above and foregoing answers of the witness, JACQUELINE MICHEL, Ph.D., to the interrogatories as indicated were made before me by the said witness after being first duly sworn to testify the truth, and same were reduced to typewriting under my direction; that the above and foregoing deposition as set forth in typewriting is a full, true, and correct transcript of the proceedings had at the time of taking of said deposition.

I further certify that I am not, in any capacity, a regular employee of the party in whose behalf this deposition is taken, nor in the regular employ of his attorney; and I certify that I am not interested in the cause, nor of kin or counsel to either of the parties.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, on this, the 8TH day of AUGUST, 2014.

PHYLLIS WALTZ, RMR, CRR
TEXAS CSR, TCRR NO. 6813
Expiration Date: 12/31/14
LOUISIANA CCR NO. 2011010
Expiration Date: 12/31/14

Worldwide Court Reporters, Inc.
Firm Certification No. 223
3000 Weslayan, Suite 235
Houston, Texas 77027
(713) 572-2000

I, JACQUELINE MICHEL, Ph.D., have read the foregoing deposition and hereby affix my signature that same is true and correct, except as noted above.

Jacqueline Michel
JACQUELINE MICHEL, Ph.D.

STATE OF ~~LOUISIANA~~ South Carolina)
~~PARISH~~ OF Richland County)

Before me, Wendy S. Early, on this day personally appeared JACQUELINE MICHEL, Ph.D., known to me, or proved to me under oath or through U.S. Passport (description of identity card or other document)), to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that they executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office on this, the 18th day of August, 2014.

Wendy S. Early
NOTARY PUBLIC IN AND FOR THE
STATE OF ~~LOUISIANA~~ South Carolina

WENDY S. EARLY NOTARY PUBLIC SOUTH CAROLINA

My Commission Expires: 11/4/2023

WITNESS CORRECTIONS AND SIGNATURE

JACQUELINE MICHEL, Ph.D. AUGUST 1, 2014

Please indicate changes on this sheet of paper, giving the change, page number, line number and reason for the change. Please sign each page of changes.

PAGE/LINE	CORRECTION	REASON FOR CHANGE
11/20	agriculture → aquaculture	typo
17/20	net → not	typo
85/24	had → hand	typo
111/7	00 → delete	typo
117/5	slough → rub	typo
149/7	windows → others	typo
151/17	presidents → representatives	typo
186/11	risk → List	typo
190/1	Profession → Protection	typo
192/10	surfaces → Services	typo
194/1+7	Reed → READ	typo
195/8+13	Reeds → READs	typo
218/6,9,+11	Stave → Stage	typo
253/19	2002 → 2012	Typo
256/6,10,13,3	LASR → LAASR	typo
259/6	secreted → accreted	typo
260/16	contents → context	typo

Jacqueline Michel

JACQUELINE MICHEL, Ph.D.

WITNESS CORRECTIONS AND SIGNATURE

JACQUELINE MICHEL, Ph.D. AUGUST 1, 2014

Please indicate changes on this sheet of paper, giving the change, page number, line number and reason for the change. Please sign each page of changes.

PAGE/LINE	CORRECTION	REASON FOR CHANGE
272/21	unseen → on seat	Typo
285/18	surface → subsurface	Typo
286/2	little → field	Typo
294/14,15	LASR → LAASR	Typo
309/6,7	Louisiana → South Carolina	wrong state
	Parish → County	wrong designation
309/18	Louisiana → South Carolina	wrong state

JACQUELINE MICHEL, Ph.D.