

Deposition Testimony of:

John Howard

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Page 10:09 to 10:11

00010:09 JOHN JACKSON HOWARD, M.D.,
10 having been first duly sworn, testified as
11 follows:

Page 10:19 to 10:25

00010:19 Can you please state your full
20 name for the record?
21 A. John Jackson Howard.
22 Q. And what is your business
23 address?
24 A. 395 E. Street Southwest,
25 Washington, D.C. 20201.

Page 15:10 to 16:06

00015:10 Q. All right. Now, Dr. Howard, you
11 currently serve in the Federal Government,
12 correct?
13 A. Yes.
14 Q. And your position is director of
15 the National Institute For Occupational
16 Safety & Health, sometimes known as NIOSH; is
17 that correct?
18 A. Yes.
19 Q. All right. Is it all right with
20 you if you -- if we refer to that national
21 institute as NIOSH throughout the deposition
22 today?
23 A. Yes.
24 Q. That will save us some time.
25 NIOSH is part of the Centers For
00016:01 Disease Control; is that correct?
02 A. Yes.
03 Q. All right. And it is also
04 within the Department of Health & Human
05 Services; is that correct?
06 A. Yes.

Page 16:13 to 16:19

00016:13 Q. How long have you served in the
14 position?
15 A. I was first appointed by
16 Secretary Thompson in 2002 and served a
17 six-year term until 2008. Then I was
18 appointed for the second time by Secretary
19 Sebelius in 2009 and have served since 2009.

Page 17:02 to 17:18

00017:02 Q. Prior to your time at NIOSH, is
03 it true that you were chief of the Division
04 of Occupational Safety and Health in the
05 California Department of Industrial
06 Relations?
07 A. Yes.
08 Q. All right. And that was from
09 1991 to 2002, correct?
10 A. Yes.
11 Q. And, Dr. Howard, you have a
12 medical degree from the -- from Loyola
13 University of Chicago, correct?
14 A. Yes.
15 Q. And you have a Master's in
16 public health from the Harvard School of
17 Public Health, correct?
18 A. Yes.

Page 17:23 to 18:01

00017:23 Q. NIOSH became involved in the
24 response to the Deepwater Horizon incident,
25 correct?
00018:01 A. Yes.

Page 18:13 to 20:25

00018:13 Q. Okay. When did NIOSH become
14 involved in the response to the DWH incident?
15 A. I don't recall the exact date,
16 but it was probably the week after the
17 explosion occurred.
18 Q. What was NIOSH's role in the
19 response to the Deepwater Horizon incident?
20 A. NIOSH's role was to support
21 OSHA, the Occupational Safety & Health
22 Administration, in ensuring that the
23 responders to the incident were safe and
24 healthy.
25 Q. Has NIOSH's work pertaining to
00019:01 the Deepwater Horizon incident ended or is it
02 ongoing?
03 A. It's ended.
04 Q. When did it end?
05 A. I don't remember a date, but I
06 would say by the beginning of August 2010.
07 Q. All right. So you're aware, of
08 course, that the explosion on the Deepwater
09 Horizon rig occurred on April 20, 2010,
10 correct?
11 A. I did not recall the exact
12 date --
13 Q. Does that sound right to you?
14 A. -- but I'll take your word for
15 it.

16 Q. Does that sound right to you?
17 A. Yes.
18 Q. All right. And so within a few
19 months, you are saying that NIOSH's role with
20 respect to the response was completed,
21 correct?
22 A. My understanding of the word
23 "role," yes.
24 Q. All right. Did you or NIOSH
25 have any ongoing involvement pertaining to
00020:01 the Deepwater Horizon incident after August
02 of 2010?
03 A. What kind of involvement?
04 Q. Any kind of involvement.
05 A. Any kind of involvement. I
06 don't remember any.
07 Q. Can you provide an overview of
08 NIOSH's work in response to the Deepwater
09 Horizon incident?
10 A. Yes. I would say it had three
11 parts. Part 1 was the rostering of
12 responders to the incident. 2 was the
13 performance of health hazard evaluations at
14 the request of the employer, BP, who employed
15 most of the responders, although the Coast
16 Guard had responders and they also requested
17 health hazard evaluations. And 3 was
18 developing interim guidance for the
19 occupational safety and health of responders
20 together with the Occupational Safety &
21 Health Administration.
22 Q. The last piece that you
23 mentioned, providing guidance, would that
24 include preparation or work on educational
25 materials with OSHA and with NIEHS?

Page 21:02 to 21:09

00021:02 A. We prepared educational
03 materials, yes. I don't recall -- I know
04 with OSHA. I don't recall with the National
05 Institute for Environmental Health Sciences.
06 Q. (BY MS. DeSANTIS) Okay. To
07 your knowledge, Dr. Howard, did NIOSH analyze
08 injury and illness data in the course of the
09 response?

Page 21:15 to 22:17

00021:15 A. I would say yes. The injury and
16 illness data that was collected by others was
17 compiled by NIOSH to present as a
18 comprehensive picture, yes.
19 Q. All right. So my understanding,
20 then, based on what you're saying, is that

21 persons at NIOSH took injury and illness data
22 that was provided by others and compiled it,
23 correct?
24 A. Yes.
25 Q. All right. And was that for the
00022:01 purpose -- was that compilation for the
02 purpose of analyzing the injury and illness
03 data?
04 A. Yes.
05 Q. Dr. Howard, to your knowledge,
06 did NIOSH also conduct toxicology studies on
07 dispersants?
08 A. Scientists at NIOSH did
09 toxicological studies on dispersants, chiefly
10 Corexit.
11 Q. Okay. And, Dr. Howard, were you
12 personally involved in the response to the
13 DWH incident on behalf of NIOSH?
14 A. No.
15 Q. So you had -- you yourself
16 personally had nothing to do with the
17 response to the DWH incident?

Page 22:19 to 23:04

00022:19 A. Well, as an administrator of an
20 agency in which there were several hundred
21 people involved, I was not personally
22 involved in the response. I didn't respond,
23 myself, to the incident. Administratively I
24 oversaw with others the -- the activities,
25 but not personally involved.
00023:01 Q. (BY MS. DeSANTIS) Were you the
02 ultimate supervisor of the work of NIOSH
03 personnel on the DWH response?
04 A. No.

Page 23:06 to 23:14

00023:06 Q. (BY MS. DeSANTIS) You were not?
07 A. No.
08 Q. Who was involved?
09 A. Dr. Kitt.
10 Q. Dr. Margaret Kitt?
11 A. Margaret Kitt.
12 Q. Okay. Were you aware of all the
13 work of NIOSH on the DWH response?
14 A. No.

Page 23:21 to 24:05

00023:21 Q. (BY MS. DeSANTIS) And who was
22 ultimately responsible for the work of NIOSH
23 in the DWH response, was it you or was it

24 Dr. Kitt?
25 A. Me as the director of the
00024:01 institute. Operationally, no.
02 Q. All right. So as the director
03 of institute -- director of NIOSH, you were
04 ultimately responsible for the work of NIOSH
05 during the response, correct?

Page 24:07 to 28:01

00024:07 A. Yes.
08 Q. (BY MS. DeSANTIS) But you
09 yourself as the director of NIOSH were not
10 the direct operational supervisor of the work
11 of NIOSH, correct?
12 A. Correct.
13 Q. And that supervisor of the
14 direct operational work of NIOSH was
15 Dr. Margaret Kitt, correct?
16 A. Yes. If we could clarify
17 "operational."
18 Q. Yes, what do you mean by
19 "operational"? You used that word.
20 A. Right. What I mean by
21 "operational" is on the ground, at the site
22 of the incident, the multiple sites of the
23 incident.
24 Q. Did you yourself spend any time
25 on the ground -- and I'm using your words --
00025:01 in the Gulf Coast states in the course of the
02 response?
03 A. Yes.
04 Q. And where did you spend time?
05 A. One visit to -- two visits. Two
06 visits. The first visit was to -- I think it
07 was Houma where there was a large, central
08 operational center that the Coast Guard, BP,
09 and other government agencies were housed.
10 And then the second visit was to New Orleans
11 for an Institute of Medicine conference on
12 the incident.
13 Q. Were those the only two times
14 that you were on location in the Gulf Coast
15 states in the course of the Deepwater Horizon
16 response?
17 A. Yes.
18 Q. During the time that NIOSH was
19 involved in the response to the Deepwater
20 Horizon incident, did NIOSH work with
21 individuals from BP?
22 A. Yes.
23 Q. Did you work with individuals
24 from BP?
25 A. No.
00026:01 Q. You yourself did not work with

02 any individuals from BP --
03 A. No.
04 Q. -- in the course of the
05 response? All right.
06 With whom did NIOSH work from BP
07 in the course of it work on the response?
08 A. I do not recall.
09 Q. Do you recall the name
10 Dr. Richard Heron?
11 A. Yes.
12 Q. Do you know Dr. Richard Heron?
13 A. Yes.
14 Q. Did NIOSH work with Dr. Richard
15 Heron during the course of the response?
16 A. Yes.
17 Q. Did you yourself work with
18 Dr. Richard Heron in the course of NIOSH's
19 work on the response?
20 A. I had, I think, two or three
21 telephone calls with Dr. Heron during the
22 response.
23 Q. Okay. After the response, did
24 you work with Dr. Richard Heron pertaining to
25 any matters concerning the Deepwater Horizon
00027:01 incident?
02 A. After the response, I don't
03 recall.
04 Q. Did you ever communicate by
05 e-mail with any people from BP in the course
06 of NIOSH's work on the response?
07 A. I don't recall.
08 Q. Okay. Did NIOSH, to your
09 knowledge, work with Dr. O'Shea from BP in
10 the course of its work on the response?
11 A. I don't recall.
12 Q. Do you remember that name?
13 A. No.
14 Q. Did NIOSH work with Fred Tremmel
15 of BP in the course of its work on the
16 response?
17 A. I think so. I remember that
18 name. I remember Dr. Kitt speaking of Fred
19 Tremmel.
20 Q. All right. Did you yourself
21 work with Dr. Tremmel at any time?
22 A. No.
23 Q. With respect to NIOSH's work
24 with BP on the DWH response, do you have any
25 impressions about that particular working
00028:01 relationship?

Page 28:03 to 28:03

00028:03 A. No.

Page 32:18 to 33:12

00032:18 this back: Are you aware of any other U.S.
19 entities, other than NIOSH, with which BP
20 worked to protect the health and safety of
21 workers in the course of the response?
22 A. I'm aware of other entities that
23 worked with BP. I do not know whether it was
24 for the purpose of protecting the health and
25 safety of workers.
00033:01 Q. And with which other entities
02 did BP work?
03 A. My only knowledge, having no
04 knowledge of all the entities that BP worked
05 with, was on my visit, my only visit to the
06 operations center; and at that time, I saw
07 the Coast Guard present, OSHA personnel
08 present, BP personnel present, and NIOSH
09 personnel present and personnel from the
10 National Institute For Environmental
11 Sciences. That's the extent of entities that
12 I knew about that were working together.

Page 34:02 to 35:19

00034:02 Doctor, do you recognize
03 Exhibit 12220 as NIOSH and OSHA's "Interim
04 Guidance for Protecting Deepwater Horizon
05 Response Workers and Volunteers," dated
06 July 26th, 2010?
07 A. Yes.
08 Q. All right. Is it correct that
09 NIOSH and OSHA jointly issued this guidance
10 for protecting DWH incident response workers
11 and volunteers?
12 A. Yes.
13 Q. And this guidance consists of
14 recommendations specifically focused on DWH
15 response activities, correct?
16 A. Yes.
17 Q. Did you yourself contribute to
18 the preparation or issuance of this guidance?
19 A. Yes.
20 Q. And what was your role?
21 A. My role was periodically to
22 enter the changes that the various
23 participants from OSHA and NIOSH wanted to
24 make to the draft as it evolved.
25 Q. Can you turn to Page 1 of the
00035:01 interim guidance and look at the section
02 "General Recommendations," please. And in
03 the first paragraph, and I will read this,
04 "The National Institute For Occupational
05 Safety & Health (NIOSH) and the Occupational
06 Safety and Health Administration (OSHA)

07 recognize that many important and
08 well-considered efforts to protect the health
09 and safety of Deepwater Horizon response
10 workers and volunteers are currently being
11 implemented."

12 Did I read that correctly?

13 A. Yes.

14 Q. To your knowledge, Dr. Howard,
15 was BP implementing any of these important
16 and well-considered efforts to protect the
17 health and safety of Deepwater Horizon
18 response workers and volunteers?

19 A. I do not know.

Page 38:11 to 39:05

00038:11 Q. Did you ever follow up, Doctor,
12 to see whether the guidelines outlined in the
13 document were put into practice?

14 A. No.

15 Q. Did anyone from NIOSH, to your
16 knowledge, ever follow up to see whether any
17 of the guidelines were put into practice?

18 A. I don't know.

19 Q. Okay. Would you turn to Tab 2
20 in your notebook, please. And we will mark
21 the document behind Tab 2 as Exhibit 12221.
22 Please put that sticker on the document.

23 Doctor, do you recognize the
24 document behind Tab 2 marked as Exhibit 12221
25 as an article that you coauthored with David

00039:01 Michaels, the director of OSHA, entitled
02 "Review of the OSHA-NIOSH Response to the
03 Deepwater Horizon Oil Spill: Protecting the
04 Health and Safety of Cleanup Workers"?

05 A. Yes.

Page 42:06 to 44:24

00042:06 Q. Did Dr. Michaels write this
07 entire document?

08 A. No.

09 Q. Which sections did you write, if
10 any?

11 A. The -- the "Rostering" section.

12 Q. And on what page? You're
13 speaking on -- beginning on Page 5?

14 A. Yes.

15 Q. All right. Other than the
16 "Rostering" section, was Dr. Michaels
17 responsible for the drafting of the remainder
18 of the document?

19 A. No.

20 Q. What other sections did you
21 draft?

22 A. The "Acknowledgments" section.
 23 Q. So then, Doctor, you drafted two
 24 sections of this document, correct?
 25 A. Yes.
 00043:01 Q. So you drafted two paragraphs on
 02 Page 5; is that correct?
 03 A. Not exactly. I reviewed the
 04 paragraphs and may have edited them, but I
 05 don't think I originated the writing. I
 06 think that was probably done by someone at
 07 NIOSH and then sent to me for inclusion.
 08 Q. All right. So you're -- you
 09 yourself did not write the "Rostering"
 10 section; it was probably done by someone else
 11 at NIOSH; is that your testimony?
 12 A. It depends on whether you think
 13 writing is a singular activity in a
 14 government agency. If you believe that
 15 writing is a singular activity, then, no, I
 16 did not. If you believe that writing is a
 17 group effort and there are contributions as
 18 the paragraphs mature, then, yes, I did edit.
 19 Q. Doctor, you're an author of this
 20 particular document, correct?
 21 A. Yes.
 22 Q. Okay. You have put your name on
 23 this document, correct?
 24 A. Yes.
 25 Q. Putting your name on this
 00044:01 document would indicate that you agree with
 02 what is written in the document; is that
 03 correct?
 04 A. I'm not sure about that.
 05 Q. Are there segments of this
 06 document with which you are in disagreement?
 07 A. I don't think so.
 08 Q. As you sit here today, can you
 09 identify for me whether there are any
 10 particular statements or sections of this
 11 document with which you disagree?
 12 A. Not today, sitting here. I
 13 would have to read it again. It's been a
 14 long time.
 15 Q. Would you agree that in the
 16 course of the response, BP took initiative to
 17 train response workers?
 18 A. I think according to
 19 Dr. Michaels' writing and -- I would say yes.
 20 Q. Do you have any reason to
 21 disagree with what is written by Dr. Michaels
 22 in this document that you coauthored with him
 23 concerning BP's training of response workers?
 24 A. Today, no.

00045:13 But today, based on what you know, what is
14 written in this document is accurate
15 pertaining to BP's efforts to train response
16 workers; is that correct?
17 A. Yes.
18 Q. Would you agree, Dr. Howard,
19 that response worker training by BP indicates
20 an effort by BP to protect the health of
21 response workers?
22 A. Yes, I would say so.

Page 47:12 to 48:22

00047:12 Q. Doctor, was it your
13 understanding that in the course of the
14 training provided by BP that workers were
15 trained on health protection?
16 A. No.
17 Q. It is not your understanding?
18 A. I do not know enough about the
19 training to be able to answer your question.
20 Q. Could you look, please, at
21 Page 5 of the document that we've marked as
22 Exhibit 122221 [sic] at the bottom, beginning
23 with the word "Overall"? Do you see where I
24 am, that paragraph?
25 A. Yes.
00048:01 Q. All right. And I will read:
02 "Overall, the efforts to ensure the safety
03 and health of these cleanup workers were
04 effective. There were no work-related
05 fatalities. NIOSH reported that between
06 April 23rd and July 27 there were 1,136
07 injuries and 994 illnesses. Of these, 175
08 injuries and 106 illnesses were
09 OSHA-recordable cases. Because protection
10 efforts were so effective, few safety and
11 health issues emerged as significant concerns
12 in the media at the national level."
13 Did I read that correctly?
14 A. Yes.
15 Q. Would you agree, Dr. Howard,
16 that efforts during the DWH response to
17 ensure the safety and health of response
18 workers were very effective?
19 A. That's what's written here, yes.
20 Q. Do you agree -- do you agree
21 with that statement?
22 A. Yes.

Page 49:02 to 49:06

00049:02 Q. Dr. Howard, do you agree that
03 there was no evidence of significant

04 short-term health effects due to the exposure
05 of cleanup workers to any toxins encountered
06 during the response?

Page 49:08 to 49:11

00049:08 A. During the response, NIOSH did
09 not measure any exceedances, except for one
10 I'm aware of, of the occupational exposure
11 limits, period. Is that a sentence?

Page 50:11 to 50:15

00050:11 Q. Do you agree that there was no
12 evidence of significant short-term health
13 effects due to the exposure of cleanup
14 workers to any chemicals encountered during
15 the response?

Page 50:17 to 50:24

00050:17 A. I'm not sure.
18 Q. (BY MS. DeSANTIS) And why is
19 that?
20 A. I think because what we measured
21 in terms of air sampling, one could not draw
22 the conclusion because there were no
23 exceedances of occupational exposure limits
24 that there was no exposure.

Page 51:25 to 52:03

00051:25 was, do you agree that there was no evidence
00052:01 of significant short-term health effects due
02 to the exposure of cleanup workers to any
03 chemicals encountered during the response?

Page 52:05 to 52:08

00052:05 A. None that NIOSH detected.
06 Q. (BY MS. DeSANTIS) Are you aware
07 of detections by any other entity?
08 A. No.

Page 52:11 to 52:12

00052:11 Doctor, would you please look at the bottom
12 of Page 5 of Exhibit 12221, carrying over to

Page 53:01 to 53:03

00053:01 Q. Do you agree that worker
02 protection efforts were effective in the
03 course of the DWH response?

Page 53:05 to 53:05

00053:05 A. Yes.

Page 53:09 to 53:11

00053:09 you. We're going to mark the document behind
10 Tab 3 as Exhibit 12222. That document, for
11 the record, is US_PP_HHS002735-39.

Page 55:13 to 58:10

00055:13 Q. All right. And to this e-mail,
14 James Spahr appears to be attaching NIOSH's
15 answers to some questions posed by Dr. Lurie;
16 is that correct?

17 A. Yes.

18 Q. All right. Now, Dr. Lurie is
19 Rear Admiral Nicole Lurie of HHS; is that
20 right?

21 A. Yes.

22 Q. All right. And if you would
23 please look behind the slip sheet of that
24 e-mail. There is a blue slip sheet, and then
25 look at the next document. And this is an
00056:01 attachment to the e-mail. The number on this
02 is US_PP_HHS002737.

03 Does this particular document
04 appear to be the attachment referenced in
05 doctor -- in James Spahr's e-mail that
06 attaches NIOSH's reply to Dr. Lurie's
07 questions?

08 A. I don't know.

09 Q. Do you see at the very top of
10 the attached document, it says, "NIOSH reply
11 to Dr. Lurie Questions"?

12 A. Yes.

13 Q. All right. And if I represent
14 to you, Dr. Howard, that this particular
15 document was produced as an attachment to the
16 e-mail chain that we have just reviewed, do
17 you have any reason to disagree that this is
18 the attachment referenced in the James Spahr
19 e-mail?

20 A. No.

21 Q. All right. Now, if you will
22 look in NIOSH's replies to Dr. Lurie's
23 questions, you will see that the first
24 question asked, "What is BP doing/providing
25 (to meet the occupational health needs of

00057:01 response workers)."

02 Do you see that?

03 A. Yes.

04 Q. All right. Okay. And NIOSH

05 replied, and I will read the second

06 paragraph: "The occupational health needs

07 for clean-up workers are provided for workers

08 at each of the BP Staging Areas. There are

09 14 Staging Areas (LA 6, MS 3, AL 3, FL2) each

10 with a centralized medical services station.

11 Medical service stations are manned by

12 paramedics. BP occupational health nurses

13 provide case management and follow-up for any

14 worker-case that require advanced treatment.

15 An Occupational Health Physician is on call

16 at all times for medical guidance. In the

17 event of serious medical conditions,

18 emergency medical transportation services are

19 provided by ambulances, which are stationed

20 at each of the medical services locations,

21 and plans are in place for helicopter medical

22 evacuation if needed, for additional

23 transportation backup to local hospitals.

24 Observations, by visiting NIOSH field

25 epidemiologists and physicians, reveal ample

00058:01 on-site medical access and transport

02 available at all locations they have visited.

03 Worker-patient workloads have been low for

04 medical personnel on-site."

05 Did I read that correctly?

06 A. Yes.

07 Q. All right. So NIOSH did reply

08 to Dr. Lurie's question about what BP was

09 doing or providing to meet occupational needs

10 of response workers, correct?

Page 58:12 to 59:04

00058:12 A. Yes.

13 Q. (BY MS. DeSANTIS) And NIOSH

14 mentioned in its answer to Dr. Lurie that

15 there were two medical officials from BP in

16 charge of directing occupational health

17 service affected by the oil spill; is that

18 correct?

19 A. Yes.

20 Q. And those two medical officials

21 from BP in charge of directing the

22 occupational health service affected by the

23 oil spill were Dr. Heron and Dr. Bradshaw; is

24 that correct?

25 A. Yes.

00059:01 Q. Based on your knowledge, were

02 Dr. Heron and Dr. Bradshaw doing strong work

03 in directing the occupational health services

04 in locations affected by the Gulf spill?

Page 59:06 to 59:11

00059:06 A. To my personal knowledge?
07 Q. (BY MS. DeSANTIS) Let's
08 distinguish. Let me ask you first with
09 respect to your personal knowledge. Can you
10 answer that question?
11 A. No.

Page 59:23 to 60:02

00059:23 Q. Yeah. Based on any knowledge
24 that you have, were Dr. Heron and
25 Dr. Bradshaw doing strong work in directing
00060:01 the occupational health services in locations
02 affected by the Gulf spill?

Page 60:04 to 60:12

00060:04 A. Yes.
05 Q. (BY MS. DeSANTIS) NIOSH's
06 answer also describes 14 BP staging areas
07 meeting the occupational health needs of
08 response workers; is that correct?
09 A. Yes.
10 Q. Do you have any knowledge as to
11 whether these 14 BP staging areas were doing
12 a strong job in meeting medical needs?

Page 60:14 to 60:22

00060:14 A. No personal knowledge, but based
15 on the answers given in this e-mail
16 attachment, yes.
17 Q. (BY MS. DeSANTIS) Based on the
18 answers given NIOSH to Nicole Lurie in this
19 e-mail attachment, you do have knowledge that
20 these 14 BP staging areas were doing a strong
21 job in meeting medical needs; is that
22 correct?

Page 60:24 to 60:24

00060:24 A. Yes.

Page 61:05 to 61:24

00061:05 Q. And these 14 BP staging areas
06 had BP occupational health nurses providing
07 case management for any advanced treatment

08 needs, correct?
09 A. Yes.
10 Q. BP was providing all of the
11 services itemized in this response, correct?
12 A. Yes.
13 Q. And emergency transportation was
14 available at all medical service locations,
15 correct?
16 A. Yes.
17 Q. And plans were in place for
18 helicopter medical evacuation, if needed,
19 correct?
20 A. Yes.
21 Q. NIOSH also reported to Dr. Lurie
22 that occupational health safety needs were
23 being met by appropriate personal protective
24 equipment -- equipment; is that correct?

Page 62:03 to 62:03

00062:03 A. Yes.

Page 62:07 to 62:17

00062:07 Q. All right. To your knowledge,
08 Dr. Howard, was personal protective equipment
09 provided to workers by BP?
10 A. Yes.
11 Q. NIOSH also says in this document
12 that in places it has observed, worker
13 training programs and direct on-site safety
14 supervision of workers was meeting the
15 occupational needs of workers; is that
16 correct?
17 A. Yes.

Page 63:03 to 64:18

00063:03 Q. (BY MS. DeSANTIS) Dr. Howard,
04 going back to the document that we were
05 looking at before the break, which was marked
06 as Exhibit 12222, and the same attachment to
07 the e-mail chain, indicating at the top
08 "NIOSH reply to Dr. Lurie Questions." Could
09 you please turn to the backside of that
10 document, the second page of the attachment.
11 And the question posed by
12 Dr. Lurie was, "What is the magnitude of
13 (occupational health) needs (among oil spill
14 clean-up workers)?"
15 Do you see where I'm reading?
16 A. Yes.
17 Q. All right. And then it
18 indicates that "OSHA 300 logs of reportable

19 injuries maintained by BP Safety at the
 20 Unified Area Command, Robert, Louisiana.
 21 Cumulative injury and illness reports for all
 22 Staging Areas (both EPA regions) show low
 23 numbers of occupational injury and illness
 24 among spill clean-up workers, and
 25 spreadsheets are being reviewed by NIOSH
 00064:01 personnel to identify trends. As of May 18,
 02 2010, only 115 reportable injuries were
 03 identified, and of these only 39 required
 04 medical treatment. The most serious worker
 05 incidents have been motor vehicle incidents
 06 and heat stress. There have been no known
 07 reports of symptoms consistent with oil or
 08 dispersant exposure."
 09 Did I read that correctly?
 10 A. Yes.
 11 Q. All right. So based on this
 12 particular set of NIOSH replies to
 13 Dr. Lurie's question, there were no known
 14 reports of symptoms consistent with oil or
 15 dispersant exposure as of the date of
 16 Dr. Spahr's e-mail, Saturday, May 22nd, is
 17 that correct, 2010?
 18 A. Yes.

Page 65:21 to 66:19

00065:21 Q. Doctor, then BP was providing an
 22 additional two occupational health nurses to
 23 better address health communications needs,
 24 correct?
 25 A. Yes.
 00066:01 Q. BP was also providing two roving
 02 safety coaches that traveled to staging areas
 03 to -- to ensure health and safety compliance,
 04 correct?
 05 A. Yes.
 06 Q. And BP safety oversight was also
 07 implementing a continuous improvement process
 08 with respect to occupational health needs,
 09 correct?
 10 A. Yes.
 11 Q. It is also true that BP was
 12 accommodating all reasonable requests for
 13 health support, correct?
 14 A. Yes.
 15 Q. Would you agree, Dr. Howard,
 16 that NIOSH's responses to Dr. Lurie's
 17 questions demonstrate that BP was making very
 18 strong efforts to protect response workers'
 19 health?

Page 66:21 to 67:01

00066:21 A. Yes.
22 Q. (BY MS. DeSANTIS) Would you
23 agree, Dr. Howard, that NIOSH's responses to
24 Dr. Lurie's questions demonstrate that BP was
25 making a strong effort to minimize the effect
00067:01 of the oil spill on workers' health?

Page 67:03 to 67:03

00067:03 A. Yes.

Page 67:08 to 68:17

00067:08 Doctor, do you recommend -- do
09 you recognize the document behind Tab 4,
10 which we've marked as Exhibit 12223, as
11 NIOSH's "Health Hazard Evaluation of
12 Deepwater Horizon Response Workers," dated
13 August 2011?
14 A. Yes.
15 Q. Now, it is correct that during
16 the response, NIOSH conducted health hazard
17 evaluations of DWH response workers, correct?
18 A. Yes.
19 Q. Is it all right if I refer to
20 NIOSH's health hazard evaluations as HHEs?
21 A. Yes.
22 Q. And is it all right if I refer
23 to this report dated August 2011 as the final
24 HHE report or the final report?
25 A. I don't know if it was the
00068:01 final, but August is late, so...
02 Q. Is it all right, then, if I
03 refer to it then as the August 2011 HHE
04 report?
05 A. Yes.
06 Q. Now, Dr. Howard, HHEs are
07 conducted following a written request from an
08 employer; is that right?
09 A. Yes.
10 Q. BP requested HHEs pertaining to
11 the DWH response activity from NIOSH; is that
12 correct?
13 A. Yes.
14 Q. In your view, was BP's request
15 to NIOSH for HHEs evidence of BP's commitment
16 to protecting the health and safety of DWH
17 response workers?

Page 68:19 to 68:21

00068:19 A. It certainly was an expression
20 of interest in ensuring that -- that hazards
21 were identified.

Page 69:02 to 71:11

00069:02 Q. All right. And if you look at
03 Page 1, the second-to-last paragraph, is it
04 true that BP ultimately requested HHEs for
05 all major offshore response activities?
06 A. Yes.
07 Q. BP requested HHEs for offshore
08 response activities including aerial and
09 vessel-based dispersant releases, correct?
10 A. Yes.
11 Q. And BP ultimately requested HHEs
12 for surface oil burning?
13 A. Yes.
14 Q. And BP also requested HHEs for
15 containment and recovery work at the oil
16 source?
17 A. Yes.
18 Q. And BP also requested HHEs for
19 other related offshore oil removal
20 activities?
21 A. Yes.
22 Q. And if you look at Page 1,
23 carrying over to the top of Page 2, is it
24 correct that BP also ultimately requested
25 HHEs to evaluate onshore response activities?
00070:01 A. Yes.
02 Q. And BP ultimately requested HHEs
03 to evaluate wildlife cleanup operations?
04 A. Yes.
05 Q. BP requested HHEs to evaluate
06 beach cleanup operations?
07 A. Yes.
08 Q. BP requested HHEs to evaluate
09 decontamination activities?
10 A. Yes.
11 Q. And BP requested HHEs to
12 evaluate waste management activities,
13 correct?
14 A. Yes.
15 Q. Did NIOSH conduct all of the
16 HHEs requested by BP?
17 A. Yes.
18 Q. Were NIOSH's investigations
19 conducted by medical officials and industrial
20 hygienists?
21 A. Yes.
22 Q. If you could turn to Page 2 of
23 the August 2011 report. The first complete
24 paragraph beginning with, "The goals..."
25 Doctor, is it true that the
00071:01 stated goals of the NIOSH HHEs for the DWH
02 incident were to describe acute health
03 effects, evaluate occupational exposures, and

04 generate hypothesis regarding symptoms
05 potentially related to work activities?
06 A. Yes.
07 Q. Is it true that HHEs are also
08 designed to determine whether any substance
09 in a place of employment has potentially
10 toxic effects in such concentrations as are
11 used or found in the place of employment?

Page 71:13 to 71:25

00071:13 A. Yes.
14 Q. (BY MS. DeSANTIS) In conducting
15 its HHEs at the request of BP, NIOSH
16 attempted to evaluate activities and job
17 duties that were representative of activities
18 and job duties across the response; is that
19 correct?
20 A. Yes.
21 Q. And in conducting its -- its
22 HHEs at the request of BP, NIOSH attempted to
23 evaluate activities and job duties that
24 response workers corrected -- that response
25 workers performed daily; is that correct?

Page 72:02 to 72:10

00072:02 A. I assume so.
03 Q. (BY MS. DeSANTIS) Did NIOSH's
04 HHEs include quantitative sampling?
05 A. Some, yes, yeah.
06 Q. Did NIOSH's HHEs also include a
07 qualitative assessment of work practices in
08 order to identify potential hazardous
09 exposures?
10 A. Yes.

Page 73:13 to 73:21

00073:13 Q. (BY MS. DeSANTIS) And did
14 NIOSH, in particular, seek to identify
15 potential dermal exposures to oil,
16 dispersants, or other chemicals in the course
17 of its HHEs?
18 A. Yes.
19 Q. NIOSH sampled for response
20 worker exposure to a large number of chemical
21 constituents, correct?

Page 73:23 to 75:01

00073:23 A. Yes. Large being more than one.
24 Q. (BY MS. DeSANTIS) NIOSH sampled

25 for chemical constituents of oil in the
00074:01 course of the HHE; is that correct?
02 A. Well, yes and no. I mean, oil
03 is a collective term to describe a lot of
04 different chemicals. So the answer would be
05 yes, many of the constituents of oil --
06 chemical constituents of oil could be
07 sampled.
08 Q. The sampling that NIOSH
09 conducted in the course of its HHEs included
10 sampling for VOCs, correct?
11 A. Yes.
12 Q. It also included sampling for
13 PAHs, correct?
14 A. Yes.
15 Q. It included -- it included
16 sampling for hydrogen sulfide, correct?
17 A. Yes.
18 Q. It included sampling for
19 chemical constituents of cleaning products
20 used by response workers, correct?
21 A. I think so, yes.
22 Q. It included sampling for
23 chemical constituents that could result from
24 the in situ burning of oil, correct?
25 A. Now I'm not a hundred percent
00075:01 sure.

Page 75:09 to 75:21

00075:09 Q. Okay. And is it correct that
10 NIOSH was sampling in the course of its HHEs
11 for particulates from combustion sources,
12 including burning oil?
13 A. Yes.
14 Q. And was NIOSH also sampling for
15 chemical constituents of diesel exhaust in
16 the course of its HHEs?
17 A. Yes.
18 Q. Would you describe NIOSH's
19 sampling for chemicals of concern that could
20 be encountered by DWH response workers as
21 comprehensive?

Page 75:23 to 76:03

00075:23 A. Yes.
24 Q. (BY MS. DeSANTIS) Would you
25 agree that NIOSH's HHEs were a thorough
00076:01 evaluation of potential Deepwater Horizon
02 response worker exposures to chemicals of
03 concern?

Page 76:05 to 76:09

00076:05 A. Yes, to chemicals of -- of
06 concern.
07 Q. (BY MS. DeSANTIS) HHEs were a
08 comprehensive evaluation of response workers'
09 potential exposures to crude oil, correct?

Page 76:11 to 76:25

00076:11 A. You know, there's where I have a
12 little bit of problem because I don't know
13 whether NIOSH sampled for every
14 constituent -- chemical constituent that
15 makes up the term oil. I'm not -- I'm not
16 sure that NIOSH did that, but -- but
17 certainly VOCs, PAHs, and -- and others like
18 that. But every constituent, that I don't
19 know.
20 Q. (BY MS. DeSANTIS) Okay. Would
21 you agree that NIOSH's HHEs were a
22 comprehensive evaluation of response workers'
23 potential exposures to VOCs, to PAHs, and to
24 hydrogen sulfide?
25 A. Yes.

Page 77:02 to 77:06

00077:02 Q. (BY MS. DeSANTIS) Would you
03 agree that NIOSH's HHEs were a comprehensive
04 evaluation of response workers' potential
05 exposures to the constituents of the
06 dispersants used in the response?

Page 77:08 to 77:14

00077:08 A. That I don't know. I don't
09 know.
10 Q. (BY MS. DeSANTIS) Do you
11 believe that NIOSH's HHEs accurately
12 identified potential hazards to response
13 workers who were working across the overall
14 response?

Page 77:16 to 78:09

00077:16 A. To overall -- to the overall
17 hazards across the response, generally, yes.
18 Q. (BY MS. DeSANTIS) To your
19 knowledge, did NIOSH post all of its HHE data
20 on the NIOSH website?
21 A. Yes.
22 Q. And to your knowledge, did NIOSH
23 publish on its website the interim HHE
24 reports and the August 2011 HHE report?

25 A. Yes.
 00078:01 Q. Were you involved in the
 02 preparation of the August 2011 HHE report?
 03 A. No.
 04 Q. Did you review any drafts of the
 05 August 2011 HHE report?
 06 A. No.
 07 Q. Did you ultimately sign off on
 08 the August 2011 HHE report?
 09 A. No.

Page 78:25 to 80:03

00078:25 Q. So there were several people
 00079:01 that at NIOSH were involved in the
 02 preparation of this report, correct?
 03 A. Oh, yes.
 04 Q. All right. And you, of course,
 05 were aware of the HHEs that were being
 06 conducted by NIOSH with respect to the DWH
 07 response, correct?
 08 A. Yes.
 09 Q. And do you agree with NIOSH's
 10 findings as reported in these -- in this HHE
 11 August 2011 report?
 12 A. Yes.
 13 Q. Were you involved in the
 14 preparation of any of the interim HHE
 15 reports?
 16 A. No.
 17 Q. And, again, you were aware of
 18 the interim HHE reports being prepared,
 19 correct?
 20 A. Yes.
 21 Q. And, again, those interim
 22 reports, like the August 2011 report, were
 23 also prepared by a number of people at NIOSH,
 24 correct?
 25 A. Yes.
 00080:01 Q. And do you also agree with -- do
 02 you also agree with NIOSH's findings in the
 03 interim HHE reports?

Page 80:05 to 81:13

00080:05 A. Yes.
 06 Q. (BY MS. DeSANTIS) If you could
 07 turn to Page 13 of the document behind Tab 4.
 08 Under the section headed "Chemical
 09 Exposures," Dr. Howard, the first paragraph
 10 indicates that a large number of chemicals
 11 was sampled over the course of the HHE. And
 12 then as you go down in that paragraph, do you
 13 see where it says, "Throughout the
 14 evaluation..."? Do you see where I'm

15 reading?
 16 A. Yes.
 17 Q. About the seventh line down.
 18 And I read, "Throughout the
 19 evaluation, results for all airborne
 20 chemicals sampled were uniformly
 21 nondetectable or at levels well below
 22 applicable OEL."
 23 Did I read that correctly?
 24 A. Yes.
 25 Q. And does "OEL" stand for
 00081:01 occupational exposure level?
 02 A. Limit or level.
 03 Q. I'm sorry, occupational,
 04 exposure limit?
 05 A. Limit or level. It varies,
 06 yeah.
 07 Q. Limit or level. And is it true
 08 that throughout NIOSH's HHE evaluations,
 09 results for all airborne chemicals sampled
 10 were uniformly non-detectible or at levels
 11 well below applicable occupational exposure
 12 levels or limits, correct?
 13 A. Yes.

Page 81:15 to 82:11

00081:15 Q. (BY MS. DeSANTIS) Do you know
 16 whether BP contributed to NIOSH's efforts to
 17 conduct the HHEs?
 18 A. Yes.
 19 Q. And what do you know with
 20 respect to BP's contributions to NIOSH's
 21 efforts to conduct the HHEs?
 22 A. First, they requested them.
 23 Second of all, I believe that access to the
 24 HHE that was performed at the source was
 25 possible -- was made possible by BP, the
 00082:01 Coast Guard, and -- and I don't know whether
 02 the agency that regulates oil drilling was
 03 involved, too, but -- but that was a
 04 restricted zone, so I believe that there had
 05 to be permissions granted by a number of
 06 entities and probably including BP to --
 07 to -- to go there and sample.
 08 Q. So it is likely that BP
 09 facilitated access at least to one of the
 10 sites covered by the HHEs, correct?
 11 A. Yes.

Page 83:02 to 83:12

00083:02 sticker. Could you please mark the document
 03 behind Tab 14 as Exhibit 12224. And do you
 04 recognize what has been marked as

05 Exhibit 12224 as NIOSH's Deepwater Horizon
06 Roster Summary Report?
07 A. Yes.
08 Q. And did you yourself participate
09 in the preparation of this document?
10 A. No.
11 Q. Did you review the document?
12 A. No.

Page 84:01 to 84:25

00084:01 Q. And if you will look at
02 Paragraph 3 of your forward, it is written,
03 "The NIOSH Deepwater Horizon Response
04 rostering effort entailed the largest
05 activation of NIOSH personnel to the field in
06 the history of the Institute, involving close
07 to 100 individuals. As a result, more than
08 55,000 workers were rostered."
09 Did I read that correctly?
10 A. Yes.
11 Q. And so this worker rostering
12 effort was the largest activation of NIOSH
13 personnel in NIOSH's history, right?
14 A. Yes.
15 Q. And the rostering effort
16 required close to a hundred NIOSH workers,
17 correct?
18 A. Yes.
19 Q. And the rostering effort
20 rostered more than 55,000 workers, correct?
21 A. Yes.
22 Q. Do you know what percentage of
23 the total DWH response workers were included
24 in NIOSH's roster?
25 A. No.

Page 85:06 to 85:20

00085:06 Q. (BY MS. DeSANTIS) If you turn
07 to Page 1 of the document, specifically
08 looking at Paragraph 2. At the bottom of the
09 paragraph, do you see where I am reading:
10 "The Unified Area Command and BP supported
11 the roster with the goal of identifying all
12 workers involved in all response/cleanup
13 activities"?
14 Did I read that correctly?
15 A. Yes.
16 Q. Did BP support NIOSH's worker
17 rostering effort?
18 A. Yes.
19 Q. Was BP's assistance important to
20 the success of NIOSH's rostering effort?

Page 85:22 to 85:22

00085:22 A. Yes.

Page 90:16 to 90:19

00090:16 Q. (BY MS. DeSANTIS) Does BP's
17 support of NIOSH's rostering effort
18 demonstrate its commitment to assist in the
19 study of health effects of response workers?

Page 90:21 to 91:01

00090:21 A. Yes.
22 Q. (BY MS. DeSANTIS) Is it also
23 fair to say that BP's support of NIOSH's
24 rostering effort demonstrates BP's commitment
25 to mitigate any effects of the spill on
00091:01 response workers?

Page 91:03 to 91:07

00091:03 A. I'm not sure I'd go that far.
04 Q. (BY MS. DeSANTIS) And why not?
05 A. I think providing assistance to
06 accomplish the task is as far as I can go
07 right now.

Page 93:23 to 94:21

00093:23 Now, let's go back -- let's look at Tab 16,
24 the document behind Tab 16, which is
25 Exhibit 12226.
00094:01 And do you see in that document
02 at the very top an e-mail from Fred Tremmel
03 to Margaret Kitt and some others at NIOSH and
04 at CDC dated Saturday, May 8th, 2010?
05 A. Yes.
06 Q. And that e-mail reads, "All,
07 "I am happy to say that I have
08 gotten verbal approvals from our Law, Health,
09 and Finance people here to fund the rostering
10 process, based on the estimate of \$352,000
11 provided by Margaret in the attached note.
12 Please begin work on the required paperwork.
13 We will need a contract drawn up and will
14 need a way to get the money to NIOSH. I'm
15 sure that there is more paperwork, but those
16 are the starting points."
17 Does it appear to you, based on
18 this e-mail, that within two days of
19 receiving a request from NIOSH, BP obtained
20 approval to support the local rostering

21 effort?

Page 94:23 to 95:07

00094:23 A. Yes.
24 Q. (BY MS. DeSANTIS) And it
25 appears based on this e-mail that BP was
00095:01 funding NIOSH's worker rostering effort,
02 correct?
03 A. Yes.
04 Q. Is it fair to say that this
05 e-mail from Fred Tremmel to Margaret Kitt
06 dated May 8th, 2010, indicated BP's support
07 for NIOSH's worker rostering effort?

Page 95:09 to 96:05

00095:09 A. Yes.
10 Q. (BY MS. DeSANTIS) Now,
11 Dr. Howard, NIOSH conducted compilations of
12 injury and illness data, correct?
13 A. Yes.
14 Q. Why did NIOSH conduct or put
15 together these compilations of injury and
16 illness data?
17 A. To surveil the responder
18 population to have realtime knowledge of
19 whether the responders were suffering from
20 injury, illness, or -- or even during the
21 symptoms surveying that we did, even
22 symptoms.
23 Q. Now, BP was providing injury and
24 illness data to NIOSH, correct?
25 A. Yes. I don't know whether they
00096:01 were doing it through the Unified Command,
02 because there were other reports, the Coast
03 Guard reports -- there were a number of
04 different sources. But I -- but I know BP
05 was one of those sources.

Page 99:04 to 101:16

00099:04 Q. (BY MS. DeSANTIS) All right.
05 If you could turn to Tab 18, please. And
06 let's mark the document behind Tab 18 as
07 Exhibit 12228.
08 Dr. Howard, do you recognize
09 Exhibit 12228 as NIOSH's "Report of Deepwater
10 Horizon Response/Unified Area Command Illness
11 and Injury Data" from April 23rd to
12 July 27th, 2010?
13 A. Yes.
14 Q. And this document is dated
15 August 13, 2010, correct?

16 A. Yes. August 13.
17 Q. All right. And if you could
18 turn to Page 4, please. Table 1 on Page 4
19 appears to be a summary of injury and
20 illnesses April 23rd to July 27th, 2010,
21 correct?
22 A. Yes.
23 Q. It shows a summary of injury and
24 illnesses from April 23rd to July 27th, 2010,
25 correct?
00100:01 A. Yes.
02 Q. And April 23rd was three days
03 after the incident began, correct?
04 A. Yes.
05 Q. And July 27th was after the well
06 was capped, correct?
07 A. I don't remember when the well
08 was capped.
09 Q. All right. The total number of
10 cases of reported injuries and illnesses in
11 this table is 2,130, correct?
12 A. Yes.
13 Q. And of those 2,130, 1,847 are
14 classified as first aid cases, correct?
15 A. Yes.
16 Q. Are you aware of how NIOSH
17 defines a first aid case?
18 A. Not entirely. I'm thinking that
19 they used the definition in the Occupational
20 Safety & Health Administration's injury and
21 illness recordkeeping standard.
22 Q. But you don't know with
23 specificity how NIOSH defines a first aid
24 case?
25 A. No.
00101:01 Q. All right. Of the 2,130
02 incidents, only 40 involved missed or
03 restricted duty, correct?
04 A. Yes.
05 Q. And if you could turn to Page 7
06 of this document. If you could look at
07 Graph 2, please. Graph 2 appears to be a bar
08 graph of total injury and illness by severity
09 April 23rd to July 27, 2010, correct?
10 A. Yes.
11 Q. First aid injuries or illnesses
12 as classified by NIOSH are by far the most
13 common injury and illnesses by severity
14 observed by NIOSH between April 23rd, 2010,
15 and July 27, 2010, as seen on this graph,
16 correct?

Page 101:18 to 102:03

00101:18 A. Yes.

19 Q. (BY MS. DeSANTIS) And if you
 20 could turn to Page 17 and looking within
 21 the -- looking within the "Chemical
 22 Exposures" section on Page 17 under the
 23 heading "Crude/weathered oil/dispersants."
 24 Do you see where it says, "Oil and/or
 25 dispersants were explicitly mentioned as a
 00102:01 contributing factor in a total of 13 cases,
 02 all 13 of which were treated by first aid
 03 alone"?

Page 102:06 to 102:16

00102:06 A. Yes.
 07 Q. So it's true that oil and/or
 08 dispersants were explicitly mentioned as
 09 contributing factors for only 13 cases out of
 10 2,130 total cases in the injuries and
 11 illnesses summarized by NIOSH in its
 12 report --
 13 A. Yes.
 14 Q. -- of every April 23rd to
 15 July 27 injury and illness reported by
 16 response workers?

Page 102:18 to 103:12

00102:18 A. Yes.
 19 Q. (BY MS. DeSANTIS) And, Doctor,
 20 of these 13 cases, some were cases of
 21 slipping on oil, correct?
 22 A. Yes.
 23 Q. And only 3 of the 13 cases were
 24 attributed to oil or dispersant vapor
 25 exposure, correct?
 00103:01 A. Yes.
 02 Q. Now, Doctor, are you aware that
 03 NIOSH conducted a number of studies on the
 04 effects of dispersant -- dispersant exposure
 05 on rats or mice?
 06 A. Yes.
 07 Q. Are you familiar with those
 08 studies?
 09 A. No.
 10 Q. Did you participate in
 11 conducting any of the studies?
 12 A. No.

Page 107:01 to 107:04

00107:01 Q. (BY MS. DeSANTIS) So you don't
 02 have any knowledge of the levels at which DWH
 03 response workers were exposed?
 04 A. To Corexit, no.

Page 114:14 to 114:17

00114:14 Q. Are you aware of any scientific
15 literature indicating that mixtures of oil
16 and dispersants can cause adverse health
17 effects?

Page 114:19 to 114:23

00114:19 A. No.
20 Q. (BY MS. DeSANTIS) Are you aware
21 of any evidence at all indicating that
22 mixtures of oil and dispersants can cause
23 adverse health effects?

Page 114:25 to 115:04

00114:25 A. No.
00115:01 Q. (BY MS. DeSANTIS) Are you aware
02 of any evidence that mixtures of oil and
03 dispersants caused adverse health effects in
04 DWH response workers?

Page 115:08 to 115:12

00115:08 A. No.
09 Q. Are you aware of any evidence
10 that mixtures of oil and dispersants caused
11 adverse health effects to members of the
12 public in the aftermath of the DWH incident?

Page 115:14 to 115:19

00115:14 A. No.
15 Q. (BY MS. DeSANTIS) Are you aware
16 of any evidence that mixtures of oil and
17 dispersants are likely to cause adverse
18 health effects in the future to DWH response
19 workers or members of the public?

Page 115:21 to 115:21

00115:21 A. No.

Page 116:01 to 116:08

00116:01 Doctor, do you recognize
02 Exhibit 12234 as NIOSH's "Lessons Learned
03 From the Deepwater Horizon Response," dated
04 December 2011?

05 A. Yes.
06 Q. Okay. If you could turn to the
07 Executive Summary on Page 2, please. And I'm
08 looking particularly at the bottom paragraph.

Page 116:11 to 116:13

00116:11 Q. (BY MS. DeSANTIS) Is it your
12 view that NIOSH's participation in the oil
13 spill response was highly successful?

Page 116:15 to 116:15

00116:15 A. Yes.

Page 117:02 to 118:01

00117:02 Q. So it is your view that NIOSH
03 successfully partnered with BP and with other
04 governmental entities within the Unified
05 Command in successfully mitigating most acute
06 health effects on DWH response workers,
07 correct?

08 A. Yes.

09 Q. If you could turn to Tab 23,
10 please. And we're going to mark the document
11 behind Tab 23 as Exhibit 12235.

12 Doctor, does Exhibit 12235
13 appear to be an on-line publication by CDC
14 entitled CDC Response to the Gulf of -- Gulf
15 of Mexico Oil Spill?

16 A. Yes.

17 Q. If you could turn to Page 2 of
18 this particular printout. And I'm looking
19 particularly in the section at the middle of
20 the page called "Data Analysis." Do you see
21 where I am?

22 A. Yes.

23 Q. Okay. Were you aware of the
24 conclusions by EPA and CDC reported in this
25 on-line publication?

00118:01 A. No.

Page 118:24 to 119:03

00118:24 Q. Is it fair to say that working
25 separately EPA and CDC came to the same
00119:01 conclusion, finding no direct exposures to
02 substances sampled for at levels high enough
03 to be expected to cause harm?

Page 119:05 to 119:05

00119:05 A. Yes.

Page 119:19 to 120:15

00119:19 And, Doctor, is Exhibit 12236 a
20 printout entitled "OSHA's Efforts to Protect
21 Workers"?
22 A. Yes.
23 Q. All right. And I'm particularly
24 looking at the Paragraph 3 after the heading
25 "Exposure to Toxic Chemicals." Do you see
00120:01 where I am?
02 A. Yes.
03 Q. Okay. Were you aware of OSHA's
04 findings regarding exposure to toxic
05 chemicals reported here?
06 A. In general, yes.
07 Q. How did you become aware of
08 OSHA's findings?
09 A. I think through -- through
10 conversations with OSHA.
11 Q. Okay. And OSHA found through
12 its air sampling efforts that no air sampling
13 by OSHA detected any hazardous chemicals at
14 levels of concern, correct?
15 A. Yes.

Page 120:17 to 120:19

00120:17 Q. (BY MS. DeSANTIS) Are you aware
18 of any information contrary to OSHA's air
19 sampling information?

Page 120:21 to 120:21

00120:21 A. I'm not aware of any.

Page 124:09 to 124:22

00124:09 Q. (BY MS. DeSANTIS) If you could
10 look back at Tab 4 again, going back to the
11 HHE final report, the August 2011 report.
12 And if you could turn to Tab -- I'm sorry,
13 turn to Page 12 of the August 2011 HHE
14 report. The section regarding heat stress.
15 In its HHE of August 2011, NIOSH concluded
16 that heat stress conditions were often the
17 most pressing concern for the health and
18 safety of response workers, correct?
19 A. Yes.
20 Q. And do you agree that heat
21 stress was the most significant problem being
22 faced by DWH response workers?

Page 124:24 to 124:24

00124:24 A. Yes.

Page 125:01 to 125:02

00125:01 turn to Tab 1. Back to these -- interim
02 guidance, Exhibit 12220. If you could turn

Page 125:05 to 125:11

00125:05 Do you agree, Dr. Howard, that
06 the use of personal protective equipment can
07 under certain circumstances exacerbate heat
08 stress?
09 A. Yes.
10 Q. And if you could turn back to
11 Tab 4, which is Exhibit 12223, the HHE August

Page 125:14 to 126:01

00125:14 Do you have knowledge,
15 Dr. Howard, that BP implemented programs
16 intended to prevent and treat heat stress in
17 response workers in the course of the DWH
18 response?
19 A. Yes.
20 Q. BP developed heat stress
21 management plans, correct?
22 A. Yes.
23 Q. And did those heat stress
24 management plans included work rest cycles,
25 20 minutes of work followed by 40 minutes of
00126:01 rest, correct?

Page 126:03 to 126:07

00126:03 A. Yes.
04 Q. (BY MS. DeSANTIS) And NIOSH
05 observed these heat stress management plans
06 in use at the sites that NIOSH evaluated,
07 correct?

Page 126:09 to 126:14

00126:09 A. Yes.
10 Q. (BY MS. DeSANTIS) Was BP
11 effectively balancing the need to protect
12 workers from potential exposure to toxins
13 with the need to avoid unnecessary hazards by
14 overuse of personal protective equipment?

Page 126:16 to 127:03

00126:16 A. I think all of the entities were
17 trying to do the same thing that you
18 described.
19 Q. (BY MS. DeSANTIS) Okay. And BP
20 was part of that effort, correct?
21 A. I think, yes, all -- we were all
22 trying to prevent heat stress.
23 Q. And everyone involved in the
24 Unified Area Command, including BP, was also
25 trying to balance the need to protect against
00127:01 heat -- heat stress with the hazards that
02 could result from overuse of personal
03 protective equipment, correct?

Page 127:05 to 127:23

00127:05 A. Yes.
06 Q. (BY MS. DeSANTIS) If we could
07 turn to Tab 18, please. Exhibit 12228.
08 Again, back to NIOSH's report of the
09 Deepwater Horizon response illness and injury
10 data.
11 If you could turn to Page 13,
12 please, there is a graph. And if after
13 looking at that graph you could please look
14 at Page 15, particularly the findings on heat
15 stress.
16 Now, Dr. Howard, heat stress was
17 affecting a number of DWH response workers,
18 correct?
19 A. Yes.
20 Q. It appears that most response
21 workers suffered from heat stress were able
22 to be treated by first aid and to return to
23 work, correct?

Page 127:25 to 128:05

00127:25 A. Yes.
00128:01 Q. (BY MS. DeSANTIS) NIOSH
02 concluded that only two cases of heat stress
03 illnesses from April 23rd to July 27th
04 resulted in restricted duty or a missed day
05 of work, correct?

Page 128:07 to 128:17

00128:07 A. Yes.
08 Q. (BY MS. DeSANTIS) If we could
09 turn back to Tab 2, which is Exhibit 12221.
10 Again, this is the report coauthored by you

11 and Dr. Michaels. And looking particularly
12 at Page 4 and protecting workers from the
13 hazards of heat, in the middle of the page.
14 Do you agree that no workers
15 involved in the response developed what you
16 would call a, quote, serious heat illness,
17 close quote?

Page 128:19 to 128:22

00128:19 A. Yes.
20 Q. (BY MS. DeSANTIS) Do you agree
21 that efforts to prevent serious heat illness
22 were successful?

Page 128:24 to 129:04

00128:24 A. Yes.
25 Q. (BY MS. DeSANTIS) And would you
00129:01 agree that BP worked collaboratively with its
02 partners in the Unified Area Command to
03 effectively mitigate the risk of heat stress
04 for response workers?

Page 129:06 to 129:10

00129:06 A. Yes.
07 Q. (BY MS. DeSANTIS) Now, personal
08 protective equipment was used by Deepwater
09 Horizon response workers to minimize contact
10 with chemicals of concern, correct?

Page 129:12 to 129:16

00129:12 A. Yes.
13 Q. (BY MS. DeSANTIS) And would you
14 agree that personal protective equipment was
15 used effectively to prevent or minimize
16 dermal contact with chemicals of concern?

Page 129:18 to 129:23

00129:18 A. Yes.
19 Q. (BY MS. DeSANTIS) In your view,
20 did the use of personal protective equipment
21 by Deepwater Horizon response workers prevent
22 dermal exposure to chemicals of concern at
23 levels that could cause harm?

Page 129:25 to 130:09

00129:25 A. I don't know of every responder

00130:01 in every case, but I certainly think the
02 purpose of personal protective equipment is
03 to prevent dermal exposure to the extent it's
04 used, yes.
05 Q. (BY MS. DeSANTIS) Okay. Are
06 you aware of cases in which any DWH response
07 worker was dermally exposed to chemicals of
08 concern at levels that could potentially
09 cause harm?

Page 130:11 to 130:17

00130:11 A. Not personally, no, I'm not
12 aware.
13 Q. (BY MS. DeSANTIS) Do you have
14 any knowledge as to whether any DWH worker
15 was dermally exposed to any chemicals of
16 concern at levels that could potentially
17 cause harm?

Page 130:19 to 130:19

00130:19 A. No, I don't.

Page 132:04 to 132:08

00132:04 Exhibit 12239 is a transcript of
05 the hearing -- is a transcript of the hearing
06 of the Committee on Health, Education, Labor,
07 and Pensions of the United States Senate,
08 dated June 15th of 2010. And I ask you to

Page 133:02 to 133:09

00133:02 Q. Did BP work cooperatively with
03 NIOSH on a matrix for selecting appropriate
04 personal protective equipment?
05 A. Yes.
06 Q. Did BP effectively implement the
07 recommended usage of personal protective
08 equipment by Deepwater Horizon response
09 workers?

Page 133:11 to 133:18

00133:11 A. I have -- I do not know
12 personally whether implement -- that --
13 that's correct.
14 Q. (BY MS. DeSANTIS) Was BP's
15 imple- -- implementation of personal
16 protective equipment protocols a
17 demonstration of BP's commitment to protect
18 the health of response workers?

Page 133:20 to 133:24

00133:20 A. Yes, uh-huh.
21 Q. (BY MS. DeSANTIS) Was personal
22 protective equipment generally effective at
23 preventing health risks to Deepwater Horizon
24 response workers?

Page 134:01 to 135:01

00134:01 A. Yes.
02 Q. (BY MS. DeSANTIS) Could you
03 turn to Tab 29, please? And we'll mark the
04 document behind Tab 29 as Exhibit 12240. And
05 Exhibit 12240 is OSHA's publication titled
06 "Deepwater Horizon Oil Spill: OSHA's Role in
07 the Response," dated May 2011, correct?
08 A. Yes.
09 Q. All right. And if you could
10 look at Page 7, Section 4.2, please, under
11 "Chemical Exposure Assessment."
12 Do you agree with OSHA that
13 respirators for Deepwater Horizon response
14 workers should be a protection of last resort
15 and not necessary for most shoreline cleanup
16 operations?
17 A. Always a protection of last
18 resort.
19 Q. Do you agree that respirators
20 can be physically taxing on a response
21 worker's body?
22 A. Yes.
23 Q. And do you agree that problems
24 can also arise when workers are using
25 respirators in extreme heat?
00135:01 A. Yes.

Page 135:10 to 135:13

00135:10 Q. (BY MS. DeSANTIS) And were --
11 were BP and its partners within the Unified
12 Area Command working to provide regular
13 opportunities for worker rest and recovery?

Page 135:15 to 136:09

00135:15 A. Yes.
16 Q. (BY MS. DeSANTIS) If you could
17 turn to Tab 27, please. It's Exhibit 12239,
18 back to your congressional testimony.
19 A. Oh.
20 Q. If you could turn to Page 12,

21 the section on "Contact." Your position is
22 that for most people, brief contact with a
23 small amount of oil would do no harm,
24 correct?

25 A. Correct.

00136:01 Q. And your position is that
02 swallowing small amounts, less than a coffee
03 cup of oil, is unlikely to have long lasting
04 health effects, correct?

05 A. Correct.

06 Q. And your position is also that
07 people may be able to smell oil at levels
08 well below those that would make most people
09 sick, correct?

Page 136:11 to 136:17

00136:11 A. Yes.

12 Q. (BY MS. DeSANTIS) Would you
13 agree that the components of crude oil that
14 are of greatest concern from a human
15 toxicology perspective, if inhaled at
16 significant concentrations, are the volatile
17 aromatic hydrocarbons?

Page 136:19 to 136:25

00136:19 A. Hard for me to say. I'm not a
20 toxicologist. So that would take some
21 comparative toxicology, comparing VOCs with
22 some of the other non-volatiles. I'm aware
23 that both -- members of both can cause
24 cancer, so I'm not -- but my knowledge of oil
25 toxicology is not extensive.

Page 139:10 to 139:19

00139:10 Q. For you it's hypothetical, I
11 understand that.
12 But if benzene and naphthalene
13 are present -- present already in air that
14 is -- that is being monitored in connection
15 with the DWH oil spill, it would be important
16 to know that these compounds are already in
17 the air as a result of other sources,
18 correct?

19 A. Yes.

Page 139:21 to 140:07

00139:21 A. (Continuing) Yes. If you're
22 making a comparison between individuals
23 exposed and community members, if they're

24 both exposed to the same thing, that would be
25 an important issue.
00140:01 Q. (BY MS. DeSANTIS) And if you're
02 actually monitoring for effects of exposure
03 to constit- -- constituents in the air
04 resulting from the Deepwater Horizon spill,
05 it's important to know what constituents are
06 in the air already absent the Deepwater
07 Horizon spill, correct?

Page 140:09 to 140:09

00140:09 A. Yes.

Page 140:18 to 140:25

00140:18 Q. Sure. If the air that is being
19 monitored in connection with the Deepwater
20 Horizon response has emissions from sources
21 not connected to the Deepwater Horizon event,
22 if you don't take other sources into account,
23 you could falsely attribute data being
24 collected on what is in the air to the
25 Deepwater Horizon incident, correct?

Page 141:02 to 141:14

00141:02 A. Yes, you could.
03 Q. (BY MS. DeSANTIS) Okay. If you
04 could turn to Page 13 of your testimony.
05 A. Oh.
06 Q. Are you already there? Looking
07 at the section on VOCs, which is about
08 two-thirds of the way down the -- down the
09 page. "VOCs, which may be more likely..."
10 Do you see where I'm reading?
11 A. Yes.
12 Q. Okay. Is it your position that
13 aged or weathered crude oil is unlikely to
14 pose inhalation risks to humans?

Page 141:16 to 141:20

00141:16 A. From VOCs?
17 Q. (BY MS. DeSANTIS) Yes.
18 A. Yes.
19 Q. Let's go back to Tab 1,
20 Dr. Howard, which is Exhibit 12220, the

Page 142:04 to 142:06

00142:04 Do you agree that weathered
05 crude oil presents less of a risk to human

06 health than fresh crude oil?

Page 142:08 to 142:08

00142:08 A. Yes.

Page 145:16 to 145:22

00145:16 Q. (BY MS. DeSANTIS) Okay. Based
17 on your knowledge and experience pertaining
18 to the DWH spill, were DWH response workers
19 exposed to airborne concentrations of
20 constituents of crude oil that would be
21 expected to result in significant adverse
22 health effects?

Page 145:24 to 146:08

00145:24 A. Based on the occupational
25 exposure limits that NIOSH compared its
00146:01 measurements to, no.
02 Q. (BY MS. DeSANTIS) In your
03 experience and based on your knowledge and
04 experience, were DWH workers exposed to
05 concentration of crude oil or constituents
06 through dermal exposure or contact that would
07 be expected to result in significant adverse
08 health effects?

Page 146:10 to 146:14

00146:10 A. Not to my knowledge, no.
11 Q. (BY MS. DeSANTIS) Do you agree
12 that protocols were in place to adequately
13 protect workers from exposure to constituents
14 of crude oil?

Page 146:16 to 146:21

00146:16 A. Yes.
17 Q. (BY MS. DeSANTIS) Do you agree
18 that any potential for significant exposure
19 to crude oil constituents was likely
20 prevented by appropriate personal protective
21 equipment?

Page 146:23 to 147:07

00146:23 A. I'm not a hundred percent sure
24 about that, because many -- many Deepwater
25 Horizon response workers did not -- did not
00147:01 wear personal protective equipment because of

02 the heat stress issue, so...
03 Q. (BY MS. DeSANTIS) Do you know
04 of any significant exposures to crude oil or
05 its constituents by response workers as a
06 result of failure to wear appropriate
07 personal protective equipment?

Page 147:09 to 147:16

00147:09 A. I don't have any knowledge of
10 that, no.
11 Q. (BY MS. DeSANTIS) Would you
12 agree that if response workers were not
13 exposed to crude oil or its constituents at
14 levels of concern, that it is highly unlikely
15 that residents onshore were exposed at levels
16 of concern?

Page 147:18 to 147:25

00147:18 A. From a geographic proximity
19 basis, no, I would not expect community
20 workers to have adverse health effects from
21 exposure to the oil or the dispersant.
22 Q. (BY MS. DeSANTIS) Would you
23 expect residents onshore to have suffered
24 adverse health effects as a result of
25 exposure to oil?

Page 148:02 to 148:12

00148:02 A. Residents onshore or people --
03 Q. (BY MS. DeSANTIS) Residents as
04 opposed to workers.
05 A. Okay. So people at a beach,
06 laying on the beach that --
07 Q. Yes, people that lived in
08 communities along the Gulf Coast.
09 A. Oh, lived, okay. Hard for me to
10 say, but I would not -- I would not be able
11 to comment on -- on that issue. I didn't
12 study them.

Page 149:11 to 149:14

00149:11 Are you aware of any air
12 monitoring data indicating that the health of
13 Gulf Coast community residents was at risk as
14 a result of the Deepwater Horizon incident?

Page 149:16 to 149:16

00149:16 A. No.

Page 150:12 to 150:17

00150:12 Q. Would you agree that the
13 potential for dermal exposure to crude oil or
14 its constituents for Gulf Coast residents was
15 low due to the low concentrations of
16 potentially toxic compounds in the oil that
17 reached the coast?

Page 150:20 to 151:05

00150:20 A. It's hard for me to really
21 answer these questions about the residents
22 because I have really no knowledge or
23 experience with the type of environmental
24 health assessments that such an answer would
25 be based on.
00151:01 Q. (BY MS. DeSANTIS) Okay. Are
02 you aware, Dr. Howard, that the constituents
03 of the Corexit dispersants have undergone
04 extensive toxicological testing and
05 evaluation?

Page 151:07 to 151:07

00151:07 A. No.

Page 151:14 to 151:16

00151:14 Q. Okay. Are you aware that a
15 majority of dispersant constituents are
16 considered to have minimal to no toxicity?

Page 151:18 to 151:18

00151:18 A. Yes, I am aware of that.

Page 152:05 to 152:09

00152:05 Do you agree that none of the
06 constituents in dispersants would be expected
07 to cause significant human health effects at
08 the low levels measured during the Deepwater
09 Horizon spill?

Page 152:11 to 152:15

00152:11 A. Yes.
12 Q. (BY MS. DeSANTIS) It's true
13 that a number of the individual constituents

14 of the Corexit dispersants are commonly used
15 in consumer products and food, correct?

Page 152:17 to 152:19

00152:17 A. I don't know that they're used
18 in food. I believe some of them are
19 surfactants that are used, like, in --

Page 152:21 to 152:23

00152:21 A. -- dishwashing, dishwashing
22 liquids to separate the -- the oil in the
23 water to wash the dish.

Page 153:03 to 153:14

00153:03 Q. Okay. Are you familiar with
04 dioctyl sodium sulfosuccinate, DOSS, D-O-S-S?
05 A. No.
06 Q. All right. What about
07 dipropylene glycol and butyl ether, are you
08 familiar with that compound?
09 A. No.
10 Q. Okay. But you are broadly aware
11 that many constituents of dispersants are
12 found in cleaners and other household
13 products?
14 A. Yes.

Page 154:05 to 154:14

00154:05 Q. (BY MS. DeSANTIS) You're not --
06 you're not aware as to when dispersants
07 stopped being used?
08 A. No, no.
09 Q. Okay. Given the distance of
10 dispersant application activities from the
11 shoreline, would you agree that it is
12 unlikely that cleanup workers on the shore
13 could be exposed to potentially harmful
14 levels of any dispersant constituents?

Page 154:16 to 154:20

00154:16 A. No, not to cleanup workers on
17 the shore.
18 Q. (BY MS. DeSANTIS) I'm sorry, so
19 you do agree?
20 A. Yes, sorry.

Page 154:23 to 155:03

00154:23 Given the distance of dispersant
24 application activities from the shoreline,
25 would you agree that it is unlikely that
00155:01 cleanup workers on the shore could be exposed
02 to potentially harmful levels of any
03 dispersant constituents?

Page 155:05 to 155:05

00155:05 A. Yes.

Page 155:08 to 155:12

00155:08 Q. (BY MS. DeSANTIS) Do you have
09 any knowledge that any DWH response workers
10 who were not working on the shore were harmed
11 as a result of exposure to potentially
12 harmful levels of dispersant constituents?

Page 155:14 to 155:19

00155:14 A. No, I have no knowledge.
15 Q. (BY MS. DeSANTIS) Do you have
16 any information that any DWH response workers
17 who were not working on the shore were harmed
18 as a result of exposure to harmful levels of
19 dispersant constituents?

Page 155:21 to 155:21

00155:21 A. No.

Page 155:25 to 156:01

00155:25 Exhibit 12241. And Exhibit 12241 is
00156:01 US_PP_HHS002375-76.

Page 156:08 to 156:15

00156:08 Q. Okay. Now, Dr. Howard, you
09 agree that volatile organic compounds, or
10 PAHs, were present at in situ burn sites,
11 correct?
12 A. Yes.
13 Q. But neither VOCs or PAHs were
14 creating a health hazard to humans at the in
15 situ burn sites, correct?

Page 156:17 to 156:17

00156:17 A. I don't think so.

Page 156:23 to 157:15

00156:23 Q. (BY MS. DeSANTIS) Well, as you
24 see, Margaret writes, I believe it's -- We
25 believe there are little VOCs and PH -- PAHs
00157:01 at this level, referring to the burn sites,
02 and that indeed it is mostly particulate
03 matter.
04 A. Ah, I see.
05 Q. Do you see that?
06 A. Yes.
07 Q. So particulate matter seemed to
08 be a concern at some of these burn sites,
09 correct?
10 A. Yes.
11 Q. Do you know of any adverse
12 health effects caused by exposure of DWH
13 response workers to particulate matter
14 resulting from the in situ burns?
15 A. No.

Page 158:15 to 159:13

00158:15 Q. (BY MS. DeSANTIS) Let's turn to
16 Tab 7 -- I'm sorry, Tab 27, 1 --
17 Exhibit 12239, your congressional testimony
18 again, Page 12. The section under "Food."
19 As of June 15th, 2010, your view
20 was that the public should not be concerned
21 about the safety of seafood in stores; is
22 that correct?
23 A. That was my testimony, yes.
24 Q. Okay. Do you question your
25 testimony today?
00159:01 A. No. I'd make the point, though,
02 that FDA prepared the HHS testimony that I
03 delivered, so it wasn't necessarily my
04 personal opinion about fish.
05 Q. All right. So it was FDA's
06 opinion that the public should not be
07 concerned about the safety of seafood in
08 stores, correct?
09 A. Yes.
10 Q. And you adopted that opinion as
11 part of your congressional testimony,
12 correct?
13 A. Yes.

Page 159:25 to 161:11

00159:25 Dr. Howard, NIOSH establishes recommended
00160:01 exposure limits, sometimes called RELs,
02 correct?

03 A. Yes.
 04 Q. Okay. RELs are a type of
 05 occupational exposure limit or level,
 06 correct?
 07 A. Yes.
 08 Q. What is the purpose of an OEL or
 09 an occupational exposure limit or level?
 10 A. Well, a REL is what we call our
 11 OELs.
 12 Q. And what --
 13 A. Everybody has a different name
 14 for them. OSHA -- because OSHA can enforce
 15 recommended levels, they're called
 16 permissible exposure limits, or PELs, for
 17 instance.
 18 Q. And what is the purpose of a
 19 NIOSH REL?
 20 A. REL. It's -- it's a
 21 recommendation to employers and workers that
 22 at that level of exposure in terms of how the
 23 REL is measured, for instance, most RELs are
 24 measured in terms of an air monitoring, that
 25 workers should not be exposed above the
 00161:01 recommended exposure limit.
 02 Q. There are sometimes short-term
 03 RELs, correct?
 04 A. There are a number of different
 05 varieties: short-term, ceiling limits.
 06 Q. And there are also long-term
 07 ceiling limits, correct?
 08 A. There are a lot of different
 09 kinds of RELs, yes.
 10 Q. Are NIOSH's RELs more or less
 11 conservative than OSHA's PELs?

Page 161:13 to 161:18

00161:13 A. In general, NIOSH RELs would
 14 probably be lower in terms of an absolute
 15 value than an OSHA PEL.
 16 Q. (BY MS. DeSANTIS) So NIOSH RELs
 17 are more conservative than an O- -- than a
 18 OSHA PEL, correct?

Page 161:20 to 162:06

00161:20 A. I guess if you use the word
 21 "conservative" to mean a value that is
 22 numerically less, then yes.
 23 Q. (BY MS. DeSANTIS) Okay. RELs
 24 are based on lifetime or working life
 25 exposure limits; is that right?
 00162:01 A. Yes.
 02 Q. And in your opinion, are RELs an
 03 important benchmark for deterring --

04 determining exposure or potential exposure of
05 individuals in occupational settings to
06 chemicals of concern?

Page 162:08 to 162:13

00162:08 A. Yes.
09 Q. (BY MS. DeSANTIS) Okay. Let's
10 turn to Tab 32 in the notebook, please. And
11 we're going to mark the document behind
12 Tab 32 as Exhibit 12242. And for the record,
13 Exhibit 12242 is US_PP_HHS010412-415.

Page 165:20 to 167:09

00165:20 Q. (BY MS. DeSANTIS) Okay. Let's
21 turn to Tab 2 in the notebook. This is
22 Exhibit 12221. Going back to your report
23 with Dr. Michaels.
24 If you could turn to Page 3,
25 please. And looking at the paragraph at the
00166:01 bottom starting "Outside of the source of the
02 crude oil discharge..."
03 Do you see where I'm reading?
04 A. Yes.
05 Q. Okay. You and Dr. Michaels, the
06 head of OSHA, concluded that outside of the
07 source of the crude oil discharge, that the
08 exposure monitoring data showed that chemical
09 exposure levels were mostly well below
10 occupational exposure levels, correct?
11 A. Yes.
12 Q. What did you mean by "outside of
13 the source of the crude oil discharge"?
14 A. I think what Dr. Michaels may
15 have been referring to is -- is community
16 exposure beyond the -- the zone that workers
17 were in, responder workers were in.
18 Q. Okay. And if you could turn now
19 to Tab 33, and we're going to mark the
20 document behind Tab 33 as Exhibit 12243. And
21 for the record, Exhibit 12243 is
22 US_PP_HHS003139-40.
23 If you could look at this e-mail
24 from Frank Hearl to Teresa Schnorr at CDC
25 NIOSH and to Allison Tepper, dated June 25th,
00167:01 2010.
02 In this e-mail, NIOSH personnel
03 are re- -- reporting that none of the OELs
04 are being exceeded, correct?
05 A. Yes.
06 Q. And they're also reporting that
07 none of the -- none -- none of the RELs are
08 being exceeded, correct?
09 A. Yes.

Page 167:16 to 168:02

00167:16 Q. (BY MS. DeSANTIS) If you look
17 in the last line of the e-mail, the question
18 is "Have we found sampling data from anyplace
19 we have sampled where OELs (RELs or TLVs)
20 have been exceeded?"
21 And the answer is "Not even
22 close."
23 Do you see where I'm reading?
24 A. Yes. I would imagine the
25 "anyplace," since it refers to NIOSH
00168:01 sampling, would have been where responders
02 were.

Page 169:02 to 169:13

00169:02 Q. Okay. But as of June 25th,
03 2010, based on this communication between CDC
04 NIOSH personnel, it is clear that NIOSH
05 personnel are finding it not even close that
06 any sampling data from any place NIOSH is
07 sampling are showing exceedances of OELs,
08 RELs, or TLVs; is that correct?
09 A. Yes.
10 Q. Let's turn to Tab 34. And let's
11 mark the document behind Tab 34 as
12 Exhibit 12244. And for the record,
13 Exhibit 12244 is US_PP_HHS005677-78.

Page 170:05 to 170:07

00170:05 Q. Okay. Were you aware of OSHA's
06 sampling and monitoring efforts and results
07 in the course of the DWH response?

Page 170:09 to 170:22

00170:09 A. Yes.
10 Q. (BY MS. DeSANTIS) Were you
11 aware in June that OSHA's sampling was
12 verifying BP's very low or not detected
13 volatile organic compounds?
14 A. I think I was aware of that OSHA
15 sampling was verifying NIOSH findings
16 sampling of very low levels.
17 Q. All right. And now you're aware
18 that OSHA sampling was also verifying BP's
19 very low or not detected VOCs, correct?
20 A. Yes.
21 Q. Are OSHA's findings consistent
22 with your knowledge of the sampling data?

Page 170:24 to 171:05

00170:24 A. They're consistent with that --
25 with the NIOSH findings.
00171:01 Q. (BY MS. DeSANTIS) All right.
02 So OSHA's findings verifying low or not
03 detected VOCs is consistent with NIOSH's
04 sampling data also finding low or not
05 detected VOCs, correct?

Page 171:07 to 171:10

00171:07 A. Yes.
08 Q. (BY MS. DeSANTIS) OSHA was
09 finding no contaminants above any recommended
10 OELs in its sampling results, correct?

Page 171:12 to 171:15

00171:12 A. I -- I don't know if all their
13 sampling, but I think what I was aware of I
14 did not -- did not see that they were finding
15 any exceedances of their --

Page 172:08 to 172:10

00172:08 Q. Were you aware at any time of
09 any NIOSH sampling or monitoring results of
10 DWH contaminants above NIOSH RELs?

Page 172:12 to 172:15

00172:12 A. Yes.
13 Q. (BY MS. DeSANTIS) And can you
14 describe those sampling or monitoring results
15 of DWH contaminants above NIOSH RELs?

Page 172:17 to 173:14

00172:17 A. Well, you know, I'm not a
18 hundred percent sure it was a DWH
19 contaminant, but because our findings are
20 measured air monitoring levels were not
21 exceeding our own RELs or other OELs, the
22 measurement of an elevated carbon monoxide
23 level, I think it occurred on a fishing
24 vessel, was notable, so that I would have
25 remembered it.
00173:01 And I remember the -- the
02 industrial hygienist at NIOSH opining that
03 they thought that the -- the pilot of the
04 boat had gotten into the stream of engine

05 combustion products that was coming out of
06 the stack when he was turning the -- the
07 boat.
08 Q. (BY MS. DeSANTIS) Okay. Other
09 than the instance that you just described
10 with respect to the elevated carbon monoxide
11 level on a fishing vessel, are you aware of
12 any other sampling or monitoring results of
13 contaminants that could have resulted from
14 the DWH incident above NIOSH RELs?

Page 173:16 to 174:20

00173:16 A. I'm not aware of any, although
17 in the back of my mind, I know there was
18 quite a bit of worry by a NIOSH industrial
19 hygienist about pressure washing of fishing
20 vessels that came back in to dry-dock to be
21 cleaned of oil and that the pressure hoses
22 could possibly aerosolize oil, but I don't
23 recall that any of those levels were
24 elevated.
25 Q. (BY MS. DeSANTIS) Do you
00174:01 understand "ND" to refer to no detection or
02 not detected when it's used with respect to
03 these monitoring results?
04 A. I'm not an industrial hygienist,
05 so I don't -- I can't say with any certainty
06 that -- that it refers to not detect, but --
07 so I don't want to venture.
08 Q. Okay. Let's go back to Tab 1,
09 which is Exhibit 12220. If you could turn to
10 Page 3, please, specifically to Note 1 on
11 Page 3. It's about in the middle of the
12 page.
13 As of July 26th, 2010, no air
14 sampling by OSHA had detected any hazardous
15 chemical levels of concern, correct?
16 A. Correct.
17 Q. Are you aware of any air
18 sampling or monitoring since that date that
19 has detected any hazardous chemical levels of
20 concern?

Page 174:22 to 174:22

00174:22 A. No.

Page 174:25 to 175:03

00174:25 Q. You're not aware, then, of any
00175:01 air sampling or monitoring detecting any
02 hazardous levels of chemicals of concern for
03 DWH response workers?

Page 175:05 to 175:10

00175:05 A. No.
06 Q. (BY MS. DeSANTIS) Are you aware
07 of any air sampling or monitoring data
08 detecting chemicals at levels of concern to
09 which the Gulf Coast public may have been
10 exposed in the aftermath of the DWH incident?

Page 175:12 to 175:12

00175:12 A. No.

Page 178:13 to 178:17

00178:13 Q. (BY MS. DeSANTIS) Let's turn to
14 page -- Tab 27, please, and this is
15 Exhibit 12239, back to your June 15th
16 congressional testimony. And if you could
17 look at Pages 53 and 54, please.

Page 180:05 to 182:22

00180:05 Q. Okay. With respect to the
06 paragraph that I pointed you to at the bottom
07 of Page 53 where it reads, "The risk for
08 adverse health effects is dependent on both
09 the type and extent of exposure to a toxic
10 substance and the inherent toxicity of the
11 substance (risk exposure times toxicity).
12 For different population groups, the relative
13 risks for adverse effects will be driven by
14 differences in exposure. As in most cases,
15 potential risks will be greatest for workers,
16 those handling the dispersants or dispersant
17 containing materials, because they will have
18 the highest exposures."
19 Did I read that correctly?
20 A. Yes.
21 Q. And do you agree with the
22 statements that I just read?
23 A. Yes.
24 Q. All right. Now, looking at the
25 next page, starting with, "For residents and
00181:01 tourists in Gulf Coast communities..."
02 Second line.
03 A. Oh.
04 Q. Page 54.
05 A. Yes.
06 Q. Okay. It reads, "For residents
07 and tourists in Gulf Coast communities, risks
08 are also expected to be minimal, since there

09 is little opportunity for these people to
10 come into contact with dispersant containing
11 materials. Future monitoring of dispersant
12 ingredients in seafood and along the Gulf
13 Coast will allow us to confirm or, if
14 necessary, modify this assessment.
15 Additionally, toxicology studies to further
16 evaluate the dispersants and oil materials
17 that people may be exposed to will help
18 inform our understanding and public actions
19 regarding these chemical substances."

20 Do you agree with the statements
21 that I just read?

22 A. Generally, yes, although I
23 certainly don't think that we -- NIOSH would
24 have commented on residents and tourists.
25 That may have been another part of the CDC.

00182:01 Q. Okay. Do you disagree with what
02 was written here regarding residents and
03 tourists?

04 A. No, I disagree with it, from the
05 knowledge that I have.

06 Q. All right. It goes on to say,
07 "Regarding the inherent toxicity of COREXIT
08 9500 and 9527, the health effects that may be
09 seen in workers under likely exposure
10 conditions are primarily irritation to the
11 eyes, skin, nose, and throat, and
12 gastrointestinal tract, if sufficient
13 material was inhaled, swallowed or came into
14 contact with unprotected skin. Several of
15 the ingredients are of very low toxicity and
16 not expected to pose any risk of adverse
17 health effects."

18 Did I read that correctly?

19 A. Yes.

20 Q. And do you agree with the
21 statements that I just read?

22 A. Yes.

Page 184:06 to 184:24

00184:06 Q. (BY MS. DeSANTIS) All right.
07 Let's turn to Tab 37. And let's mark the
08 document behind Tab 37 as Exhibit 12246. And
09 for the record, Exhibit 122 -- no, we don't
10 have a Bates on that? No, we don't have a
11 Bates on that.

12 All right. Do you recognize
13 this as a printout of OSHA's document
14 entitled "OSHA's Statement on 2-Butoxyethanol
15 & Worker Exposure"?

16 A. Yes.

17 Q. All right. And if you look in
18 the middle of the document starting with the

19 word "Approximately." Do you see where I'm
20 reading?
21 A. Yes.
22 Q. Were you aware of OSHA's
23 conclusion regarding the lack of worker
24 exposure to 2-butoxyethanol?

Page 185:01 to 185:05

00185:01 A. Yes.
02 Q. (BY MS. DeSANTIS) Do you have
03 any information that any DWH response workers
04 were exposed to 2-butoxyethanol at levels
05 sufficient to cause harm?

Page 185:07 to 185:11

00185:07 A. Acute harm.
08 Q. (BY MS. DeSANTIS) Do you have
09 any information that any DWH response workers
10 were exposed to 2-butoxyethanol at levels
11 sufficient to cause acute harm?

Page 185:13 to 185:18

00185:13 A. No, I have no information.
14 Q. (BY MS. DeSANTIS) Do you have
15 any information that any DWH response workers
16 were exposed to 2-butoxyethanol at levels
17 sufficient to cause chronic harm?
18 A. No.

Page 186:05 to 186:08

00186:05 Do you agree that potential for
06 dermal exposure to the components of crude
07 oil and dispersants for cleanup workers was
08 small?

Page 186:10 to 186:23

00186:10 A. I'm not sure the potential was
11 small, as the actuality was small. I think
12 there was a lot of oil and a lot of people
13 were around that oil, but they were well
14 protected and I -- so I don't think that they
15 were actually exposed, although the potential
16 certainly was there.
17 Q. (BY MS. DeSANTIS) So the
18 protective measures that were put in place by
19 the Unified Area Command, BP, governmental
20 entities all working together operated to
21 mitigate the potential for dermal exposure of

22 workers to components of crude oil and
23 dispersants, correct?

Page 186:25 to 187:07

00186:25 A. Yes. I think the risk was less
00187:01 with protections that were put in place.
02 Q. (BY MS. DeSANTIS) Do you agree
03 that the potential for dermal exposure to
04 crude oil for Gulf Coast residents was low
05 due to the low concentrations of potentially
06 toxic compounds in the oil that reached the
07 coast?

Page 187:09 to 187:16

00187:09 A. Well, again, I don't have much
10 information on resident exposure.
11 Q. (BY MS. DeSANTIS) Okay. Given
12 the results of sampling and monitoring this
13 took place in the course of the DWH response,
14 would you expect to see significant adverse
15 health effects in workers from exposure to
16 oil and/or its constituents?

Page 187:18 to 187:25

00187:18 A. Not based on our measurements,
19 our air monitoring measurements, no.
20 Q. (BY MS. DeSANTIS) Given the
21 results of sampling and monitoring that took
22 place in the course of the DWH response,
23 would you expect to see significant adverse
24 health effects in response workers resulting
25 from exposure to dispersants or constituents?

Page 188:02 to 188:10

00188:02 A. Not based on -- no, not based on
03 our measurements and OSHA's measurements.
04 Q. (BY MS. DeSANTIS) Given the
05 results of sampling and monitoring that took
06 place in the course of the DWH response,
07 would you expect to see significant adverse
08 health effects in response workers resulting
09 from exposure to any other substance as a
10 concern of which you are aware?

Page 188:12 to 188:17

00188:12 A. No, not based on our
13 measurements.
14 Q. (BY MS. DeSANTIS) Are you aware

15 of any significant adverse health effects to
16 response workers from exposure to oil or oil
17 constituents?

Page 188:19 to 189:01

00188:19 A. I'm not aware of any acute
20 health effects that had -- that were
21 experienced during the pendency of the
22 response.
23 Q. (BY MS. DeSANTIS) Are you aware
24 of any significant chronic adverse health
25 effects to response workers that resulted
00189:01 from exposure to oil or to constituents?

Page 189:03 to 189:10

00189:03 A. No, but those chronic health
04 effects may take years to manifest, but I'm
05 not aware of anything at this point in time.
06 Q. (BY MS. DeSANTIS) Are you aware
07 of any significant adverse effect -- adverse
08 health effects to response workers from
09 exposure to dispersants or dispersant
10 constituents?

Page 189:12 to 189:21

00189:12 A. Certainly not acute health
13 effects. Chronic health effects I don't
14 know, but I have no knowledge of them at this
15 point in time.
16 Q. (BY MS. DeSANTIS) But you're
17 not aware of any significant adverse acute
18 health effects to response workers resulting
19 from exposure to dispersants or dispersant
20 constituents, correct?
21 A. No.

Page 189:24 to 190:02

00189:24 Q. (BY MS. DeSANTIS) Do you expect
25 any significant long-term adverse health
00190:01 effects to DWH response workers from exposure
02 to oil or oil constituents?

Page 190:04 to 190:10

00190:04 A. Hard to say. I think only a
05 long-term study would -- would answer that
06 question, in my mind.
07 Q. (BY MS. DeSANTIS) Do you expect
08 any significant long-term adverse health

09 effects to DWH response workers from
10 dispersants or dispersant constituents?

Page 190:12 to 190:20

00190:12 A. I think, again, a long-term
13 study of dispersant and oil exposures would
14 be needed to answer that question.
15 Q. (BY MS. DeSANTIS) Given the
16 results of the sampling and the monitoring
17 taking place in the course of the DWH
18 response and the levels of exposure, does
19 that affect your expectation regarding
20 long-term health effects?

Page 190:22 to 191:04

00190:22 A. Based on the measured exposure
23 that -- that NIOSH did, my expectation would
24 be that we saw no acute health effects from
25 any of those measured exposures. And, again,
00191:01 the chronic health effects would be something
02 that I could not say definitively yes or no.
03 I'd have to look at a chronic health study to
04 see -- to answer that question fully.

Page 191:22 to 191:24

00191:22 Q. Okay. You're not aware of any
23 sampling or monitoring producing results
24 above the NIOSH RELs, correct?

Page 192:02 to 192:09

00192:02 A. No, I'm not aware.
03 Q. (BY MS. DeSANTIS) All right.
04 Given that measurements were below the NIOSH
05 RELs, do you have a low expectation that
06 there will be chronic health effects in
07 response workers as a result to exposure of
08 chemicals of concern in the DWH response?
09 A. Yes --

Page 192:12 to 192:14

00192:12 A. (Continuing) Yes, as compared
13 to measured levels that would be above the
14 REL.

Page 193:04 to 193:09

00193:04 Q. (BY MS. DeSANTIS) Okay. Do you

05 think that it is likely that you will see a
06 study associating adverse health effects --
07 adverse long-term health effects in DWH
08 response workers with exposures resulting
09 from the DWH incident?

Page 193:11 to 193:19

00193:11 A. Well, there is a long-term
12 health study going on by NIH. So I suppose
13 when that's done, we'll all have our answer.
14 Q. (BY MS. DeSANTIS) We'll talk
15 about that study in a little bit.
16 Do you expect any significant
17 long-term adverse health effects to members
18 of the public from exposure to oil or
19 constituents of oil?

Page 193:21 to 194:04

00193:21 A. I just -- I just don't know.
22 I'm not an environmental health -- community
23 health specialist. So that would be not
24 something I would opine on.
25 Q. (BY MS. DeSANTIS) And do you
00194:01 expect any significant long-term adverse
02 health effects resulting to the public from
03 exposure to dispersants or dispersant
04 constituents?

Page 194:06 to 194:11

00194:06 A. Probably the same answer. I'm
07 not really at liberty -- I'm at liberty, but
08 I'm not capable of really answering the
09 question.
10 Q. (BY MS. DeSANTIS) Okay. Let's
11 turn to Tab 22, which is Exhibit 12234, the

Page 194:19 to 196:14

00194:19 Q. Okay. NIOSH held ongoing
20 internal discussions regarding biological
21 monitoring, correct?
22 A. Yes.
23 Q. Did you participate in these
24 discussions?
25 A. No.
00195:01 Q. Did you know about these
02 discussions?
03 A. Yes.
04 Q. And who participated in these
05 discussions?

06 A. NIOSH scientists from the HHE
07 program as well as NIOSH scientists who are
08 specialists in biological monitoring.
09 Q. Did you know what was discussed?
10 A. No.
11 Q. Okay. What did you know about
12 these ongoing internal NIOSH discussions?
13 A. I knew the impetus for them.
14 Q. And what was the impetus for
15 them?
16 A. The impetus was after several
17 months of doing extensive air monitoring, I
18 think the question arose amongst NIOSH
19 industrial hygienists as to whether or not we
20 were fully covering all routes of exposure.
21 We were certainly covering the inhalational
22 route through air monitoring.
23 The question arose whether or
24 not there was other exposures, dermal route
25 of exposure or gastrointestinal route of
00196:01 exposure that could have resulted in a -- an
02 exposure that we were not monitoring.
03 And so I think the industrial
04 hygienist began to talk about doing a
05 biological monitor, taking blood or urine
06 samples from responders and assessing them
07 for the presence of -- of chemicals that were
08 related to the constituents of oil or
09 Corexit.
10 Q. And as a result of these
11 discussions among NIOSH industrial hygienists
12 and other NIOSH personnel, what did they
13 conclude about any necessity for
14 biomonitoring?

Page 196:16 to 196:22

00196:16 A. I don't recall them concluding
17 anything about necessity. I think that their
18 discussions were interrupted by the capping
19 of the well.
20 Q. (BY MS. DeSANTIS) NIOSH did not
21 ultimately recommend biomonitoring of
22 response workers, correct?

Page 196:24 to 197:03

00196:24 A. No, no.
25 Q. (BY MS. DeSANTIS) I'm sorry, is
00197:01 it correct that NIOSH did not recommend
02 biomonitoring of response workers?
03 A. Yes.

Page 197:05 to 197:08

00197:05 Q. (BY MS. DeSANTIS) To your
06 knowledge, did NIOSH make any formal
07 recommendation to the UAC that biomonitoring
08 not be performed?

Page 197:10 to 197:14

00197:10 A. No.
11 Q. (BY MS. DeSANTIS) Did NIOSH, to
12 your knowledge, advise the UAC that it was
13 its recommendation that biomonitoring should
14 not be performed?

Page 197:16 to 197:20

00197:16 A. No.
17 Q. (BY MS. DeSANTIS) Did any U.S.
18 governmental agencies or entities conduct
19 biomonitoring of response workers, to your
20 knowledge?

Page 197:22 to 198:04

00197:22 A. I'm not aware of.
23 Q. (BY MS. DeSANTIS) Okay. Did
24 any state entities conduct biomonitoring of
25 response workers, to your knowledge?
00198:01 A. No.
02 Q. Should BP or the Unified Area
03 Command have conducted biomonitoring of
04 response workers?

Page 198:06 to 198:21

00198:06 A. I think one of the lessons
07 learned from Deepwater Horizon would have
08 been to collect blood and perhaps other
09 bodily fluids at the time that a responder
10 entered the exposure zone, so that if
11 biological monitoring did occur during the
12 response, there would be a comparison
13 baseline to use, but I don't think the -- I
14 don't think that I could say it should have
15 been done.
16 If an event -- a chemical
17 exposure event like this were to occur
18 tomorrow, I think probably NIOSH would
19 recommend that biological samples be taken
20 from responders and would give serious
21 consideration to doing biological monitoring.

Page 200:19 to 200:23

00200:19 Q. (BY MS. DeSANTIS) If exposure
20 data shows the unlikelihood of significant
21 worker exposure to toxins of concern, is that
22 a reason not to conduct biomonitoring of
23 workers?

Page 200:25 to 201:04

00200:25 A. No.
00201:01 Q. (BY MS. DeSANTIS) If exposure
02 data shows unlikelihood of significant
03 exposures, can that be a reason not to
04 conduct biomonitoring?

Page 201:06 to 201:20

00201:06 A. No. I think the exposures
07 that -- again, that -- that we're talking
08 about are air monitoring exposures. So,
09 theoretically, one could be exposed dermally
10 and have a positive biomonitoring test, still
11 not be exposed through air monitoring. So it
12 would be a different route. And that was --
13 that's the essential question that one
14 considers another type of sampling, because
15 the air monitoring may be entirely negative,
16 let's say, and yet an individual can be
17 exposed through another route. They could
18 have failed to wash their hands when they ate
19 and gotten exposure through the GI tract, for
20 instance.

Page 201:25 to 201:25

00201:25 behind Tab 22, which is Exhibit 12234

Page 202:05 to 202:07

00202:05 Q. Okay. Did NIOSH discuss the
06 need or lack thereof for long-term health
07 studies during the response?

Page 202:09 to 202:16

00202:09 A. Yes, we -- we discussed the
10 need.
11 Q. (BY MS. DeSANTIS) Did you
12 participate in these discussions?
13 A. Yes.
14 Q. Do you believe that long-term
15 health studies are necessary with respect to
16 the DWH incident?

Page 202:18 to 202:23

00202:18 A. Based on our air measurements,
19 no.
20 Q. (BY MS. DeSANTIS) Are you aware
21 of other data that leads you to believe that
22 long-term health studies should be performed
23 with respect to the DWH incident?

Page 202:25 to 203:14

00202:25 A. Yes. And what I refer to here
00203:01 is the -- the fact that oil spill -- the
02 studies of -- of -- of ex- -- of individuals
03 exposed in oil spills, whether they be
04 workers or the community, is a very scant
05 world literature. I'm not aware of the
06 presence of studies that would indicate doing
07 a long-term study in this case, but I am
08 aware of the fact that the world's literature
09 about the science of studying populations
10 that has been exposed is scant, and,
11 therefore, an opportunity like this where a
12 large number of people participated in a
13 response to an oil spill may add to that
14 literature.

Page 206:04 to 206:09

00206:04 Q. (BY MS. DeSANTIS) Do you agree
05 that the degree of weathering of crude oil in
06 the Deepwater Horizon incident is one reason
07 why this incident is not directly comparable
08 to other oil spills involving only surface
09 oil releases?

Page 206:11 to 206:16

00206:11 A. Yes.
12 Q. (BY MS. DeSANTIS) Would you
13 agree that weathering processes occurred for
14 oil in the DWH incident that did not in other
15 oil spills involving only surface oil
16 releases?

Page 206:18 to 206:23

00206:18 A. Yes.
19 Q. (BY MS. DeSANTIS) As a result
20 of weathering, the oil from the DWH incident
21 that reached the shoreline was depleted of
22 some potentially toxic compounds of crude

23 oil, correct?

Page 206:25 to 206:25

00206:25 A. Yes.

Page 207:04 to 208:12

00207:04 earlier. You are familiar with the NIEHS
05 study that's being conducted on the long-term
06 health of response workers, correct?

07 A. I know of it, yes.

08 Q. All right. People sometimes
09 call this the GuLF Long-Term Study; is that
10 correct?

11 A. Yes, GuLF study. I'm not sure
12 about the long-term part, but GuLF study,
13 yeah.

14 Q. The GuLF study. So if we refer
15 to it today as either the GuLF study or the
16 NIEHS study, you'll know what I mean?

17 A. Yes.

18 Q. Is NIOSH participating in the
19 GuLF study in any capacity?

20 A. No.

21 Q. Does NIOSH have any involvement
22 at all in the GuLF study?

23 A. No.

24 Q. Do you yourself have any
25 involvement in the GuLF study?

00208:01 A. No.

02 Q. Are you aware of the progress of
03 the study?

04 A. No.

05 Q. Are you aware of any interim
06 results of the study?

07 A. No.

08 Q. Given what you know about the
09 exposure levels of any toxins to DWH response
10 workers, do you expect the long-term GuLF
11 study to show adverse health effects in
12 response workers?

Page 208:14 to 208:18

00208:14 A. It's hard to know. Hard to
15 predict.

16 Q. (BY MS. DeSANTIS) Are you
17 supportive of the GuLF study being conducted
18 by NIEHS?

Page 208:20 to 208:24

00208:20 A. Well, it's not my job to support
21 or not support NIEHS.
22 Q. (BY MS. DeSANTIS) Okay. Do you
23 think that conducting the study that's
24 currently being done by NIEHS is a good idea?

Page 209:01 to 209:11

00209:01 A. I think they think it's a good
02 idea.
03 Q. (BY MS. DeSANTIS) I'm asking do
04 you think it's a good idea?
05 A. Not my job to decide what
06 NIH put -- where NIH puts its money.
07 Q. Well, regardless of whether it's
08 your job to decide where they put their
09 money, I'm asking do you believe that there
10 is merit in conducting -- in NIEHS as
11 conducting this long-term study?

Page 209:13 to 209:21

00209:13 A. I'm not in a position to -- to
14 determine the merit that NIEHS sees or
15 doesn't see.
16 Q. (BY MS. DeSANTIS) I'm not
17 asking for your views of what NIEHS sees.
18 I'm asking for your views. Do you believe
19 that the GuLF study should be conducted by
20 NIEHS?
21 A. I don't know.

Page 209:24 to 210:07

00209:24 A. (Continuing) I don't know.
25 Q. (BY MS. DeSANTIS) You don't
00210:01 know. Why don't you know? Why don't you
02 have a view on that?
03 A. I'm not doing the study.
04 Q. No. But regardless of whether
05 you're doing the study, do you have a view as
06 to whether or not the study should be
07 conducted?

Page 210:10 to 210:24

00210:10 A. No. I think that if NIOSH was
11 asked, would you do a chronic health study,
12 we would look at our measured exposure data
13 to make that decision, and we would probably
14 say, as we've said in several different
15 locations, including a paper on the issue of
16 how to make a decision about whether to do

17 long-term studies, we would probably answer
18 no from our point of view, but our point of
19 view is not NIH's point of view.
20 Q. (BY MS. DeSANTIS) Okay. So if
21 NIOSH had been asked whether it believed it,
22 NIOSH, should conduct a long-term study of
23 the health of workers, NIOSH would have said
24 no, correct?

Page 211:01 to 211:21

00211:01 A. Well, we said though --
02 Q. (BY MS. DeSANTIS) And what
03 did --
04 A. -- in actuality to NIH when we
05 were asked to participate.
06 Q. And why did NIOSH say no when
07 asked by NIH to participate in a long-term
08 study of workers?
09 A. As I said, because we looked at
10 our data and we did not see a way to
11 characterize exposure.
12 Q. When you say you did not see a
13 way to characterize exposure, what do you
14 mean?
15 A. We did not see measured levels
16 that exceeded our RELs or other OELs.
17 Q. And because you did not see data
18 exceeding NIOSH RELs with respect to worker
19 exposure to toxins, NIOSH determined that it
20 would not participate in a long-term worker
21 health study, correct?

Page 211:23 to 211:23

00211:23 A. Yes.

Page 212:14 to 212:20

00212:14 Q. (BY MS. DeSANTIS) When NIOSH
15 determined that it would not participate in a
16 long-term worker health study because of the
17 lack of data exceeding NIOSH RELs, did NIOSH
18 make the decision not to participate because
19 it did not expect the study to demonstrate
20 any results due to low exposure levels?

Page 212:22 to 214:19

00212:22 A. I don't think that was the
23 primary reason. The primary reason, if you
24 had found, let's say, in a long-term study
25 health effects and you then tried to, as you

00213:01 would, correlate them with the measured
02 exposure level from an occupational
03 standpoint -- because we do occupational
04 cohort studies. We don't do community
05 studies or environmental studies. The GuLF
06 study has a number of different populations
07 in it, including workers, responders.
08 But from the -- from the
09 occupational point of view, we -- we didn't
10 see a way to categorize workers based on
11 the -- the -- the exposure levels that were
12 so far below our OELs.
13 Q. (BY MS. DeSANTIS) Okay. When
14 asked --
15 A. I think it was -- if I
16 could just -- I think it was an
17 epidemiological judgment made by
18 epidemiologists in NIOSH that they -- they
19 could not see an epidemiological reason based
20 on the exposure levels of the occupational
21 exposures. It doesn't mean that there are
22 not other exposure that -- that may have
23 occurred. Mental health exposures to the
24 community that NIH may be interested in, for
25 instance.

00214:01 So just based on the -- from an
02 epidemiological point of view, I think that's
03 probably the biggest reason.
04 Q. Okay. After NIH approached
05 NIOSH with respect to participation in the
06 study, is it your understanding that NIH then
07 subsequently asked NIEHS to -- to conduct the
08 study?
09 A. Well, NIEHS is a component
10 institute of the National Institutes For
11 Health, and it was Dr. Francis Collins, the
12 director of NIH, who first told in a House
13 Committee, I believe on the same day that
14 Senate hearing was going on, that NIH would
15 study the -- the situation.
16 So NIEHS was the logical
17 institute within NIH to do such a study,
18 since they do environmental population
19 studies.

Page 215:19 to 215:24

00215:19 Q. (BY MS. DeSANTIS) It's true,
20 isn't it, Dr. Howard, that the individuals
21 closest to the source in many cases were the
22 people who were wearing the -- the greatest
23 amount of personal protective equipment,
24 correct?

Page 216:01 to 216:01

00216:01 A. Yes.

Page 230:13 to 230:15

00230:13 Are you reviewing most of the
14 studies in the scientific and medical
15 communities pertaining to the DWH incident?

Page 230:17 to 230:23

00230:17 A. I'm not. Scientists at NIOSH
18 read lots of -- of journals, and it may come
19 to their attention directly, or it may be
20 brought to their attention from another
21 person outside of NIOSH. I don't know how
22 this study came to the attention of -- of
23 folks at NIOSH.

Page 231:12 to 231:16

00231:12 Q. (BY MS. DeSANTIS) Okay. Have
13 you ever publicly expressed any concerns with
14 what you consider to be flawed science
15 pertaining to health effects resulting from
16 the DWH spill?

Page 231:18 to 232:11

00231:18 A. I can't remember. I don't
19 remember now doing that. But in public I'm
20 not sure. I may have expressed to
21 individuals that -- who have asked me, for
22 instance, why NIOSH didn't do a study, a
23 long-term health study of workers, for
24 instance. I think I could have expressed a
25 view about that. But publicly I don't know.
00232:01 I don't know about the public.
02 Q. (BY MS. DeSANTIS) And with
03 respect to any communications regarding NIOSH
04 not doing a study, what have you said
05 privately?
06 A. I think, basically, the same
07 that I've said today, is that we looked at it
08 very carefully and -- and considered
09 participation in a long-term health study and
10 the views of our epidemiologists were that
11 that would not be productive.

Page 232:14 to 233:12

00232:14 Tab 41 as Exhibit 12248. Exhibit 12248 is a

15 "Case Study, Deepwater Horizon Response
 16 Workers Exposure Assessment at the Source:
 17 MC252 Well No. 1."
 18 Isn't that right?
 19 A. Yes.
 20 Q. And it's dated June 2011,
 21 correct?
 22 A. Yes.
 23 Q. Are you familiar with this
 24 particular piece from the Journal of
 25 Occupational and Environmental Hygiene?
 00233:01 A. Actually, no.
 02 Q. Okay. This study, Dr. Howard,
 03 reports the NIOSH worker exposure assessment
 04 completed for workers aboard two main vessels
 05 working to contain the release of oil into
 06 the Gulf of Mexico from -- from Deepwater
 07 Horizon.
 08 Would you agree with that
 09 characterization, if you'd take a look at the
 10 introduction?
 11 A. Yes.
 12 Q. Okay. And --

Page 233:15 to 234:12

00233:15 A. (Continuing) I -- I remember
 16 this study now, but I did -- I've never
 17 actually seen it in this printed, published
 18 form.
 19 Q. (BY MS. DeSANTIS) But you are
 20 aware that this was being -- this study was
 21 being conducted?
 22 A. Yeah, I -- I thought it was HSE.
 23 I guess it's -- they published it separately.
 24 Q. Could you take a look for me at
 25 Page D44, which is just the flip side of the
 00234:01 first page. The middle of the first column,
 02 beginning the second full paragraph, the word
 03 "Completing an exposure assessment..."
 04 Do you see that?
 05 A. Yes.
 06 Q. Okay. Just give you a minute to
 07 read it.
 08 Do you agree that assessing
 09 workers' potential exposure to oil at the
 10 source and at locations where oil first
 11 surfaced was logical?
 12 A. Yes.

Page 234:14 to 234:23

00234:14 Q. (BY MS. DeSANTIS) And why is
 15 that?
 16 A. Because that, theoretically,

17 based on all previous knowledge that NIOSH
18 had, would have resulted in the highest
19 levels of -- of exposure. Air monitoring
20 results would be expected to be very high at
21 the source as opposed to, as we've talked
22 about today, oil that would have been
23 weathered on its way to the shore.

Page 235:08 to 236:04

00235:08 Q. (BY MS. DeSANTIS) Okay. So on
09 the DDII and the Enterprise is the location
10 where you would expect to see the highest
11 concentrations of the contaminants being
12 evaluated?
13 A. Yes.
14 Q. Now, if you can look at the
15 "Results" section on Page D46. The first
16 sentence indicates that "Airborne
17 concentrations for all contaminants evaluated
18 on the DD II and the Enterprise were well
19 below (less than 10 percent and often
20 substantially less than 10 percent of) the
21 lowest applicable OELs (identified in
22 Table II)."
23 Correct?
24 A. Yes.
25 Q. Okay. And, again, this was
00236:01 results of sampling for workers thought to
02 have the greatest exposure potential to the
03 evaluated contaminants, correct?
04 A. Yes.

Page 236:10 to 236:13

00236:10 Q. Do you find the results of this
11 study to be consistent with your overall
12 knowledge of exposure levels to workers as a
13 result of any airborne contaminants?

Page 236:15 to 236:20

00236:15 A. Yes.
16 Q. (BY MS. DeSANTIS) Okay.
17 Dr. Howard, do you know whether being exposed
18 to toluene, for example, in addition to
19 benzene can increase the risk of decreased
20 lymphocyte count or of anemia?

Page 236:22 to 237:03

00236:22 A. I did -- I have no knowledge of
23 the additive effect of toluene and benzene

24 on -- on the bone marrow.
25 Q. (BY MS. DeSANTIS) Okay. Is it
00237:01 true that additive effects are expected only
02 if the compounds are individually associated
03 with a common end point?

Page 237:05 to 237:06

00237:05 A. I'm not well enough versed on my
06 toxicology to answer that question.

Page 237:19 to 237:24

00237:19 Dr. Howard, in your experience,
20 was the universe of environmental and
21 occupational health exposure data collected
22 in the wake of the DWH incident unprecedented
23 in NIOSH's experience as responding to
24 disasters?

Page 238:01 to 238:04

00238:01 A. Yes.
02 Q. (BY MS. DeSANTIS) Was the data
03 collection, in your experience, done in a
04 very systematic fashion?

Page 238:06 to 238:16

00238:06 A. I think in the end it was. The
07 requests from BP came in two -- two requests,
08 and when they were combined, there was a
09 comprehensive characterization together with
10 the case study that is this Exhibit 12248.
11 It resulted in a comprehensive
12 characterization of the workers' exposure.
13 Q. (BY MS. DeSANTIS) So, overall,
14 you would re- -- you would deem NIOSH's
15 collection of data here to be both systematic
16 and comprehensive, correct?

Page 238:18 to 238:18

00238:18 A. Yes.

Page 239:12 to 239:18

00239:12 Q. Okay. Is it your view that the
13 extensive exposure data set that was
14 collected in the wake of this response is
15 sufficient to allow scientists and medical
16 professionals to assess possible adverse

17 chronic health effects that could result from
18 the DWH spill?

Page 239:20 to 240:01

00239:20 A. That, I'm not sure about.
21 Q. (BY MS. DeSANTIS) Okay. Do you
22 have any information that the data set that
23 was collected is not sufficient to allow
24 scientists and medical professionals to
25 assess possible adverse chronic health
00240:01 effects that could result from the DWH spill?

Page 240:03 to 240:15

00240:03 A. I think to the extent that
04 the -- the findings are -- are air
05 monitoring, they're -- they're -- they're
06 limited in that way. As we talked about,
07 biomonitoring was not done in this -- in this
08 disaster.
09 So to the extent that all
10 exposure is reflected in the measured levels,
11 then -- then yes, but there could have been
12 residual exposure that was not -- that we did
13 not measure. Even though the air level may
14 have been below all -- all OELs, there could
15 still be some type of exposure.

Page 240:22 to 241:01

00240:22 Q. (BY MS. DeSANTIS) Do you agree
23 safety controls were implemented during the
24 response to ensure that response workers were
25 not harmed by the aerial application of
00241:01 dispersants?

Page 241:03 to 241:14

00241:03 A. I remember the aerial moni- --
04 the aerial spraying of dispersant being an
05 issue that was discussed during the response;
06 and a number of agencies, I think including
07 EPA and OSHA and us, suggested that it not be
08 done around the boats because people on the
09 boats could be -- could be sprayed.
10 So I think that that issue was
11 looked at very carefully during the response
12 and appropriate measures were taken to limit
13 exposure to the -- the Corexit as it was
14 being applied.

Page 241:22 to 242:03

00241:22 Q. (BY MS. DeSANTIS) Okay. And
23 you're aware that response workers on the
24 vessels applying dispersants were taking
25 precautions with the use of personal
00242:01 protective equipment to protect themselves
02 from any potentially harmful levels of toxins
03 and dispersants?

Page 242:05 to 242:05

00242:05 A. Yes.

Page 243:12 to 243:14

00243:12 Q. And let's mark the document
13 behind Tab 36 as Exhibit 12249. And for the
14 record, Exhibit 12249 is U_PP_HS010080.

Page 244:24 to 245:09

00244:24 Q. (BY MS. DeSANTIS) If you could
25 turn to Tab 22, which is Exhibit 12234. Back
00245:01 to the Lessons Learned document. And if you
02 could turn to Page 9, please.
03 And, particularly, the third
04 full paragraph down where it says, NIOSH
05 staff also participated in regular
06 UAC-BP-OSHA worker safety meetings to discuss
07 current and emerging issues and provide
08 recommendations in a timely manner -- manner.
09 Do you see that?

Page 245:13 to 246:08

00245:13 A. Ah, okay, yes.
14 Q. Were you aware of NIOSH
15 participation in these regular UAC-BP-OSHA
16 worker safety meetings?
17 A. Yes.
18 Q. Did you participate in any of
19 the meetings?
20 A. No.
21 Q. And is it your understanding
22 that in these meetings the parties discussed
23 current and emerging issues regarding human
24 health?
25 A. Yes.
00246:01 Q. Okay. And they provided
02 recommendations for dealing with potential
03 human health issues?
04 A. Yes.
05 Q. Okay. So was this evidence a
06 cooperation between NIOSH, the Unified Area

07 Command, BP, and OSHA regarding efforts to
08 protect worker health?

Page 246:10 to 247:03

00246:10 A. Yes.
11 Q. (BY MS. DeSANTIS) Okay. If you
12 could turn to Page 11.
13 Okay. Looking at the first
14 paragraph of the "Lessons-Learned
15 Observations," the second sentence reads,
16 "The collaborative work conducted with OSHA,
17 HHS/ASPR, HHS/SAMHSA, HHS/NIH/NIEHS, the U.S.
18 Coast Guard, state partners, and BP from the
19 early stages of the response was key to
20 efforts to protect response workers."
21 Do you see where I'm reading?
22 A. Yes.
23 Q. Okay. And was it your
24 experience that there was collaborative work
25 conducted between BP, NIOSH, and the other
00247:01 referenced parties in this Lessons-Learned
02 Observations?
03 A. Yes.

Page 247:20 to 247:24

00247:20 Q. So was it your experience that
21 NIOSH worked collaborative- --
22 collaboratively with BP from the early stages
23 of the response?
24 A. Yes.

Page 248:01 to 248:05

00248:01 Q. (BY MS. DeSANTIS) And was it
02 also your experience that other governmental
03 entities such as OSHA were working
04 collaboratively with BP from the early stages
05 of the response to protect human health?

Page 248:07 to 248:12

00248:07 A. Yes.
08 Q. (BY MS. DeSANTIS) And
09 collaboration between BP and NIOSH and other
10 governmental entities was key in the efforts
11 to protect the health of response workers,
12 correct?

Page 248:14 to 248:14

00248:14 A. Yes.

Page 249:08 to 251:24

00249:08 So if you could look at the
09 document behind Tab 6, and I'm going to ask
10 you to mark that document as Exhibit 12250.
11 It's the Health Hazard Evaluation of
12 Deepwater Horizon Response Workers Interim
13 Report 2, dated July 12th, 2010; is that
14 right?
15 A. Right.
16 Q. And then if you could flip to
17 the document behind Tab 7, let's mark that as
18 Exhibit 12251, and that is the Health Hazard
19 Evaluation of Deepwater Horizon Response
20 Workers Health Hazard -- Hazard Evaluation
21 Interim Report No. 3, dated July 22nd, 2010;
22 is that right?
23 A. Yes.
24 Q. And if you could look behind
25 Tab 8, let's mark that document as
00250:01 Exhibit 12252, and that is Health Hazard
02 Evaluation of Deepwater Horizon Response
03 Workers Health Hazard Evaluation Interim
04 Report No. 4, August 11, 2010, correct?
05 A. Yes.
06 Q. And let's look at the document
07 behind Tab 9, which is -- is Health Hazard
08 Evaluation of Deepwater Horizon Response
09 Workers Health Hazard Evaluation Interim
10 Report No. 5, dated August 26th, 2010, marked
11 as Exhibit 12253, correct?
12 A. Yes.
13 Q. All right. And let's look at
14 the document behind Tab 10 and mark that as
15 Exhibit 12254, and that is the Health Hazard
16 Evaluation Interim Report 6, dated September
17 13th, 2010, correct?
18 A. Yes.
19 Q. And let's mark the document
20 behind Tab 11 as Exhibit 12255, and that is
21 Health Hazard Evaluation Interim Report 7,
22 dated October 15, 2010, correct?
23 A. Yes.
24 Q. And turning to the document
25 behind Tab 12, let's mark it as 12256, and
00251:01 that is the Health Hazard Evaluation Interim
02 Report 8, dated October 25th, 2010, correct?
03 A. Yes.
04 Q. And, finally, the document
05 behind Tab 13, which let's mark it as
06 Exhibit 12257, and that is the Health Hazard
07 Evaluation Interim Report 9, dated
08 December 7th, 2010, correct?
09 A. Yes.

10 Q. All right. And we've previously
11 marked as Exhibit 12231 the HHE Interim
12 Report No. 1, which is behind Tab 5, and
13 we've marked the HHE August 2011 report as
14 Exhibit 12223.

15 A. Yes.

16 Q. So looking at the collection of
17 HHE interim reports that we have just marked,
18 HHE interim reports 2 through 9 the HHE
19 Interim Report No. 1 that we previously --
20 that we previously marked and the HHE report
21 of August 2011, do you believe that this
22 constitutes all of the HHE interim reports
23 and other reports done -- done by NIOSH in
24 connection with the DWH response?

Page 252:01 to 254:04

00252:01 A. Yes.

02 Q. (BY MS. DeSANTIS) Okay. Let's
03 turn back to Tab 4, the HHE August 2011
04 report. And if you can turn to Page 3,
05 Tab 4, and I'm specifically looking at
06 Page 3, the paragraph that carries over to
07 the top of Page 4 regarding exposure
08 evaluations of oil dispersant release
09 activities. Do you see where I am?

10 A. Yes.

11 Q. Okay. And then over in the
12 carryover paragraph at the top of Page 4, I'm
13 going to ask you a question specifically
14 about that -- that particular paragraph.

15 Is it true that with respect to
16 its exposure evaluations of dispersant
17 release activities, NIOSH concluded that the
18 measured substances were either not detected
19 or were present at low concentrations below
20 individual occupational exposure limits?

21 A. Yes.

22 Q. Okay. Looking at Page 4,
23 Paragraph 2, which is really Paragraph 1.
24 It's the first complete paragraph on June 21
25 to 22, 2010. It's clear that NIOSH also

00253:01 conducted further exposure assessments and
02 air monitoring on board of a couple of
03 vessels, correct?

04 A. Yes.

05 Q. And as a result of these
06 exposure evaluations of dispersant release
07 activities, NIOSH concluded that the
08 substances measured were either not detected
09 or at concentrations well below OELs,
10 correct?

11 A. Yes.

12 Q. All right. And if you could now

13 look at Page 4, the section on "In-Situ Oil
14 Burning."

15 A. Yes.

16 Q. It's true, is it not, that with
17 respect to its exposure evaluations of in
18 situ burns, NIOSH found that exposures for
19 all compounds sampled were either below
20 detectible concentrations or well below
21 applicable OELs, with one exception being a
22 peak exposure of 220 parts per million of CO
23 re- -- recorded on the double engine ignition
24 boat, correct?

25 A. Yes.

00254:01 Q. And it was found that this peak
02 was likely due to the buildup of exhaust from
03 the gasoline powered engines when idling with
04 no movement of the boat and no wind, correct?

Page 254:06 to 254:16

00254:06 A. Yes.

07 Q. (BY MS. DeSANTIS) Okay. And if
08 you look at the bottom of Page 4 with respect
09 to "Oil Booming, Skimming, and Vacuuming,"
10 with respect to its exposure evaluation of
11 oil booming, skimming, and vacuuming
12 activities, NIOSH concluded that, "The PBZ
13 and area air concentrations of the measured
14 compounds were below detectible levels or
15 well below OELs."

16 Correct?

Page 254:20 to 258:12

00254:20 A. Yes.

21 Q. Okay. NIOSH also conducted an
22 exposure assessment of an offshore oil
23 skimming and recovery mission involving a
24 platform supply vessel, correct?

25 A. Yes.

00255:01 Q. And with respect to this
02 investigation, NIOSH concluded that PBZ and
03 area air concentrations of the contaminants
04 measured were well below applicable OELs,
05 correct?

06 A. Yes.

07 Q. NIOSH also visually inspected
08 skimming and "vacuuing" -- vacuuming
09 operations on the set of barges, right?

10 A. Yes.

11 Q. And with respect to those
12 inspections, NIOSH identified certain
13 musculoskeletal -- musculoskeletal risks to
14 workers, but no chemical exposure-related
15 risks, correct?

16 A. Yes.
17 Q. All right. Now, looking at the
18 "Oil Source Activity" section beginning on
19 the bottom of Page 5. With respect to its
20 exposure evaluations of source activities,
21 NIOSH concluded that airborne concentrations
22 for all contaminants -- contaminants
23 evaluated on the DDII and the Discoverer
24 Enterprise were well below applicable OELs,
25 correct?

00256:01 A. Yes.
02 Q. And looking on Page 6 at
03 "Wildlife Cleanup," NIOSH identified heat as
04 the primary exposure of concern to
05 individuals engaged in wildlife cleaning,
06 correct?

07 A. Yes.
08 Q. And looking at "Beach Cleanup"
09 on Page 7 -- 6 and 7, actually, NIOSH
10 performed an exposure assessment of 67
11 onshore work sites, correct?

12 A. Yes.
13 Q. And NIOSH selected several sites
14 that were deemed to be heavily oiled,
15 correct?

16 A. Correct.
17 Q. And NIOSH's findings were that
18 even at work sites where oil residue was
19 judged to be heavy, worker exposure to oil
20 residue typically was judged to be limited
21 because of the nature of the oil residue and
22 the use of PPE, correct?

23 A. Yes.
24 Q. And NIOSH saw no evidence of
25 exposure to dispersants at the shore cleaning
00257:01 sites, correct?

02 A. Correct.
03 Q. Okay. And looking at
04 "Decontamination and Waste Management"
05 Beginning at the bottom of Page 7. NIOSH
06 conducted exposure assessments at
07 decontamination and waste management sites,
08 correct?

09 A. Yes.
10 Q. And NIOSH identified heat to be
11 a primary exposure of concern, correct?

12 A. Yes.
13 Q. With respect to its exposure
14 evaluation of decontamination and waste
15 management activities, NIOSH concluded that
16 the air concentrations for these and other
17 chemicals quantified were well below
18 applicable OELs, and they were referring to
19 VOCs, glycol ethers, total particulate
20 matter, and several other compounds, correct?

21 A. Yes.

22 Q. Referring to infirmary --
23 directing your attention to "Infirmary Log
24 Reviews" at the bottom of Page 8, NIOSH also
25 collected and reviewed daily infirmary logs
00258:01 for June 2010 from the Venice branch
02 infirmary, correct?
03 A. Yes.
04 Q. And NIOSH reviewed logs for
05 1,004 recorded visits, correct?
06 A. Uh-huh.
07 Q. NIOSH concluded based on the
08 review of the infirmary logs that there were
09 no unrecognized or unreported occupational
10 illnesses due to workplace exposures,
11 correct?
12 A. Correct.

Page 259:07 to 260:16

00259:07 Q. Okay. Do you consider yourself
08 an expert in toxicology?
09 A. No.
10 Q. And do you consider yourself an
11 expert in epidemiology?
12 A. No.
13 Q. And are you qualified as an
14 industrial hygienist?
15 A. No.
16 Q. So with regard to the data that
17 was collected by NIOSH during the response,
18 who was responsible for designing the
19 protocols for collection of that data?
20 A. It would have been the HHE
21 program itself. An individual, I don't know,
22 but -- I don't know who the individual was
23 that was responsible.
24 Q. Okay. Let's take a look at
25 what's been marked as Exhibit 12223, which is
00260:01 in Tab 4 of your binder.
02 Counsel for BP asked you
03 questions about this document, and you
04 characterized it as the summary of the HHE
05 work done by NIOSH. Is that accurate?
06 A. Yes.
07 Q. And on Page 1 of that document
08 in the second paragraph, it says, "On May 28,
09 2010, the National Institute for Occupational
10 Safety and Health (NIOSH) received a request
11 for a health hazard evaluation (HHE) from BP
12 management concerning health effects
13 experienced by responders to the oil
14 release."
15 Do you see that?
16 A. Yes.

Page 260:21 to 260:24

00260:21 Q. Are you aware of any monitoring
22 that was done by NIOSH as part of the
23 Deepwater response prior to May 28?
24 A. No.

Page 261:07 to 262:03

00261:07 Q. And is it your understanding
08 that prior to that June 2nd, 2010 meeting, no
09 monitoring work was begun on the HHE?
10 A. I don't know that for a fact,
11 no.
12 Q. Okay. Are you aware of any
13 monitoring work by NIOSH that happened prior
14 to June 2nd?
15 A. No.
16 Q. Do you have knowledge of any
17 monitoring data related to the Deepwater
18 Horizon incident between the date of
19 explosion, April 20th, and June 2nd, 2010?
20 A. No.
21 Q. With regard to the data --
22 monitoring data that NIOSH collected, do you
23 know the dates on which NIOSH sampled the air
24 around the Deepwater Horizon?
25 A. No, I don't know the exact
00262:01 dates.
02 Q. Okay. If you could go ahead and
03 mark that exhibit as Exhibit 12258.

Page 262:08 to 262:11

00262:08 Q. On the top page that appears to
09 be an index. It says "CDC NIOSH Health
10 Hazard Evaluation of Deepwater Horizon
11 Response Workers."

Page 262:16 to 262:23

00262:16 Q. (BY MS. CROSS) And, Dr. Howard,
17 so you understand where this came from, we
18 pulled this off the NIOSH HHE website, and
19 it's entitled on that website "HHE Exposure
20 Monitoring Data."
21 Did you at any point review this
22 exposure monitoring data?
23 A. No.

Page 263:09 to 263:21

00263:09 Q. Is it your understanding that

10 NIOSH included all of its monitoring results
11 in the HHE exposure monitoring data that it
12 made publicly available on its website?
13 A. Yes.
14 Q. Okay. And if you look through
15 this document, it includes in the third
16 column dates of all of the sampling that was
17 conducted. Do you see that?
18 A. I see the word "Date."
19 Q. Do you have reason to understand
20 that that is meant to reflect the dates of
21 sampling done by NIOSH?

Page 263:23 to 264:04

00263:23 A. I -- I'm not sure. I assume so,
24 yes.
25 Q. (BY MS. CROSS) Okay. And I can
00264:01 represent to you or have you review, either
02 way, that the dates in here range from
03 June 4th to June 23rd and then for the final
04 set of data August 10th?

Page 264:06 to 264:14

00264:06 Q. (BY MS. CROSS) All right. Do
07 you have any reason to believe that there was
08 NIOSH sampling done outside of the window of
09 June 4th to June 23rd and separately
10 August 10th?
11 A. No.
12 Q. Okay. To your knowledge, NIOSH
13 did not do any monitoring in the month of
14 July; is that accurate?

Page 264:16 to 264:21

00264:16 A. In July?
17 Q. (BY MS. CROSS) Yes.
18 A. I don't know.
19 All the dates look like
20 they're -- they're in June on this -- on this
21 paper.

Page 265:05 to 265:13

00265:05 Q. (BY MS. CROSS) Okay. Are you
06 aware of any NIOSH air monitoring that was
07 done in July?
08 A. No, but I'm not aware of the
09 dates of the air monitoring in general.
10 Q. Is it fair to say that the NIOSH
11 HHE assessments were not intended to describe

12 or investigate potential long-term or chronic
13 health effects?

Page 265:15 to 265:18

00265:15 A. Correct.
16 Q. (BY MS. CROSS) And another way
17 of knowing what the dates were is to take a
18 look at Exhibit 4, which is Exhibit 12223.

Page 265:20 to 265:24

00265:20 Q. (BY MS. CROSS) Counsel for BP
21 led you through each of the exposure
22 evaluations, and in each one, the date of the
23 sampling is recorded. Could you confirm that
24 that's the case?

Page 266:01 to 266:07

00266:01 A. Looks like every -- the
02 beginning of every category has sets of
03 dates.
04 Q. (BY MS. CROSS) And based on the
05 final HHE assessment, is it true that all
06 quantitative monitoring occurred during the
07 month of June or on August 10th?

Page 266:09 to 266:22

00266:09 A. I think so, yeah.
10 Q. (BY MS. CROSS) I'd like to hand
11 you what's been marked as Exhibit 12259, an
12 article entitled "The Gulf Oil Spill"
13 published in the New England Journal of
14 Medicine. And the citations at the bottom of
15 the document, it appears to have been
16 published on April 7th, 2011. Do you see
17 that?
18 A. Yes.
19 Q. In Tab 4, the health hazard
20 summary that's been marked as 12223, on
21 Page 17, one reference is listed. Do you see
22 that?

Page 266:24 to 267:01

00266:24 A. What page?
25 Q. (BY MS. CROSS) Page 17.
00267:01 A. Yes.

Page 267:19 to 268:04

00267:19 Q. Is it your understanding that
20 the exhibit that has now been marked as
21 Exhibit 12259, the Gulf Oil Spill review
22 article. Is the reference that is cited on
23 Page 17 of NIOSH's health hazard assessment
24 summary?
25 A. Yes.
00268:01 Q. Have you reviewed this Gulf Oil
02 Spill article in the New England Journal of
03 Medicine?
04 A. No.

Page 271:07 to 271:09

00271:07 Q. (BY MS. CROSS) Are you aware of
08 any dermal monitoring that NIOSH did during
09 the response of any sort?

Page 271:11 to 271:25

00271:11 A. I think what I was aware of
12 in -- in looking at these materials today is
13 that NIOSH personnel did visual observation
14 of -- of dermal exposure as opposed to
15 measuring it. If measurement -- if visual
16 inspection is a type of measurement, then
17 yes.
18 Q. (BY MS. CROSS) And beyond the
19 visual measurements did NIOSH do any
20 monitoring of dermal exposure to oil from the
21 spill?
22 A. No, not to my knowledge.
23 Q. Other than the NIOSH monitoring
24 data, what other data regarding exposure did
25 you review during the spill?

Page 272:02 to 273:04

00272:02 A. I remember looking at the injury
03 and illness logs that were reported, I think
04 daily or weekly, symptom surveys that NIOSH
05 did. That's it.
06 Q. (BY MS. CROSS) And do you
07 recall reviewing any monitoring data from BP?
08 A. No, I don't recall view --
09 looking at any data from BP.
10 Q. Okay. Are you aware what the
11 dates of BP's monitoring were?
12 A. No.
13 Q. Did you review any monitoring
14 data from EPA?
15 A. No.
16 Q. Did you review any monitoring

17 data from the Coast Guard?
 18 A. No.
 19 Q. And did you review any
 20 monitoring data from FDA?
 21 A. No.
 22 Q. And, finally, did you review any
 23 monitoring data from OSHA?
 24 A. No.
 25 Q. And so given your testimony that
 00273:01 you didn't review any monitoring data from
 02 BP, you aren't aware whether there are
 03 exceedances of NIOSH safety levels in that
 04 data, are you?

Page 273:06 to 274:18

00273:06 A. No.
 07 Q. (BY MS. CROSS) For the record,
 08 I'm handing you what's been marked in a prior
 09 deposition as Exhibit 12017, Bates numbers
 10 US_PP_USCG047827 through 67.
 11 Counsel for BP asked you about a
 12 document that's 8 -- at Tab 18 in your
 13 binder, that's Exhibit No. 12228. Would you
 14 turn to that, please.
 15 A. (Witness complies.)
 16 Q. And do you recall being asked
 17 questions about this "NIOSH Report of
 18 Deepwater Horizon Response/Unified Area
 19 Command Illness and Injury Data" from
 20 April 23rd to July 27th, 2010?
 21 A. Yes.
 22 Q. Are you aware that injury and
 23 illness data continued to be logged past the
 24 date of July 27th, 2010?
 25 A. No.
 00274:01 Q. And when you testified that you
 02 reviewed injury and illness data, during what
 03 period did you review that data?
 04 A. I would say early on, probably
 05 in May, June.
 06 Q. This e-mail is from Mary Kay
 07 Bradbury to a number of recipients, and she
 08 writes in the second paragraph, "Please note
 09 that this week's report includes an influx of
 10 about 1,100 incidents from June and July that
 11 had previously not been reported."
 12 Do you see that?
 13 A. Yes.
 14 Q. Do you have any basis to dispute
 15 that there was a failure to include 1100
 16 incidents in the June and July reporting
 17 prior to this point, November -- or, sorry,
 18 September 2010?

Page 274:20 to 275:02

00274:20 A. No.
21 Q. (BY MS. CROSS) And so the
22 numbers that counsel reviewed with you in
23 Exhibit 12228 regarding numbers of injuries
24 and illnesses reported had not been corrected
25 to reflect these additional 1100 incidents
00275:01 from June and July that Mary Kay Bradbury
02 writes about; is that your understanding?

Page 275:04 to 275:08

00275:04 A. Yes.
05 Q. (BY MS. CROSS) Do you
06 understand that there was a medical
07 pre-clearance procedure for workers to work
08 on the Deepwater response?

Page 275:10 to 275:19

00275:10 A. I -- yes.
11 Q. (BY MS. CROSS) And do you know
12 when that medical pre-clearance procedure
13 first started?
14 A. No.
15 Q. Do you know whether every worker
16 who was involved in the response, in fact,
17 went through the medical pre-clearance
18 process?
19 A. No.

Page 276:02 to 276:04

00276:02 Q. (BY MS. CROSS) Were you
03 personally aware of SAMHSA's findings
04 regarding mental health effects of the spill?

Page 276:06 to 276:10

00276:06 A. Their findings, no.
07 Q. (BY MS. CROSS) And have you
08 done anything to educate yourself about the
09 findings of other agencies with regard to
10 mental health?

Page 276:12 to 276:17

00276:12 A. No.
13 Q. (BY MS. CROSS) And so it's fair
14 to say you can't draw any conclusions about
15 the effect of the spill on the mental health
16 of either responders or population as a

17 whole; is that fair?

Page 276:19 to 277:06

00276:19 A. Yes.
20 Q. (BY MS. CROSS) Let's turn to
21 personal protective equipment and
22 specifically to Tab 1 in your binder, which
23 has been marked Exhibit 12220. That's
24 entitled "Interim Guidance For Protecting
25 Deepwater Horizon Response Workers and
00277:01 Volunteers."
02 Do you see that?
03 A. Yes.
04 Q. And the date on that document is
05 July 26th, 2010, right?
06 A. Yes.

Page 277:18 to 278:10

00277:18 Q. (BY MS. CROSS) Do you see that
19 the title is "Interim Guidance For Protecting
20 Deepwater Horizon Response Workers and
21 Volunteers"?
22 A. Yes.
23 Q. At this point, was there any
24 final guidance for protecting Deepwater
25 Horizon response workers and volunteers?
00278:01 A. No.
02 Q. Was there at any point any final
03 guidance for protecting Deepwater Horizon
04 response workers and volunteers?
05 A. No.
06 Q. At what point was this
07 information regarding guidance for protecting
08 Deepwater Horizon response workers and
09 volunteers disseminated to workers and
10 volunteers involved in the spill?

Page 278:12 to 278:22

00278:12 A. I don't know the exact date. I
13 know that drafts were circulated amongst all
14 the participants in the Unified Area Command
15 as the response occurred. I think the -- the
16 guidance was then finalized on this date of
17 July 26th.
18 Q. (BY MS. CROSS) Okay. And do
19 you know when it first went to sites to be
20 applied to individual workers and volunteers
21 working on the response?
22 A. No.

Page 278:24 to 279:07

00278:24 A. (Continuing) I don't recall
25 that.
00279:01 Q. (BY MS. CROSS) Did NIOSH do
02 compliance monitoring for implementation of
03 PPE protocols?
04 A. No.
05 Q. Do you know when the full set of
06 PPE recommendations NIOSH and OSHA made were
07 first implemented?

Page 279:09 to 280:20

00279:09 A. No.
10 Q. (BY MS. CROSS) If you could
11 turn to Appendix A in that same document.
12 And identified here, according to the title,
13 are "Human Health Effects Studies from
14 Selected Oil Tanker Spill Disasters."
15 Who was responsible for
16 compiling this list of human health effect
17 studies?
18 A. As I recall, one of our
19 librarians did a literature search and came
20 up with the world's literature on health
21 studies following an oil spill.
22 Q. And is it your understanding
23 that this set of documents represents the
24 entire universe of that literature, or is
25 there additional literature?
00280:01 A. I don't know if there is
02 additional literature. I think the intent
03 was that this represented the best available
04 studies follow -- on -- on -- on responder
05 and community populations following
06 significant oil spills.
07 Q. Did you review all of these
08 studies?
09 A. No.
10 Q. And you testified earlier about
11 your concerns with certain studies regarding
12 oil spills. Do you have those concerns about
13 all of the studies identified here?
14 A. I think the -- the general view
15 that NIOSH scientists came up with is that
16 there were as -- as every study has
17 limitations, that there were some limitations
18 to each of these studies that were listed
19 and -- and that despite that, that this
20 was -- this is the world's literature.

Page 281:13 to 281:19

00281:13 Q. (BY MS. CROSS) Do you recall

14 whether there were findings in these studies
15 regarding adverse health effects?
16 A. Well, yes.
17 Q. I'm handing you a document,
18 Dr. Howard, previously marked as
19 Exhibit 12026.

Page 281:25 to 282:04

00281:25 Q. (BY MS. CROSS) And I direct
00282:01 your attention to the -- the second e-mail,
02 that e-mail in the chain from Greg Lotz to
03 you and others. Do you see that?
04 A. Yes.

Page 282:08 to 282:18

00282:08 Q. Greg Lotz is identified in his
09 e-mail address as CDC/NIOSH/DART. What is
10 DART?
11 A. The Division of Applied Research
12 and Technology.
13 Q. Okay. And is DART within NIOSH?
14 A. Yes.
15 Q. And the subject of the e-mail is
16 "Biomonitoring Recommendation for DWH
17 response workers" and -- do you see that?
18 A. Yes.

Page 282:25 to 284:11

00282:25 Q. (BY MS. CROSS) And he says, "A
00283:01 limited biomonitoring study could be
02 beneficial for the following reasons: A
03 limited study could provide information as to
04 whether worker exposures to VOCs and PAHs are
05 truly occurring. Rapid detection methods for
06 these two classes of compounds are already
07 developed such that results could be reported
08 within a few days. Biomonitoring could
09 determine the efficacy of personal protective
10 equipment (PPE) being used by the clean-up
11 workers."
12 And the final bullet is, Since
13 heat stress is the number one worker issue,
14 the use of biomonitoring could determine
15 whether there -- whether more or less PPE is
16 warranted. It may be possible to get the
17 workers out of the Tyvek suits to lessen
18 their heat body burden.
19 Do you agree with the benefits
20 of biomonitoring identified by Greg Watts
21 here?
22 A. Yes.

23 Q. And you responded to the e-mail
 24 above on June 25th, and you wrote, Folks, as
 25 a result of I/OM and other conversations and
 00284:01 reading, I'm concerned that we may not be
 02 have a comprehensive approach to exposure
 03 monitoring for Gulf workers.
 04 And you go on. Do you see that?
 05 A. Yes.
 06 Q. Okay. And did you send that
 07 e-mail?
 08 A. Yes.
 09 Q. Do you recall that there was a
 10 proposal for biomonitoring that was sent to
 11 BP?

Page 284:13 to 285:10

00284:13 A. No, I don't recall.
 14 Q. (BY MS. CROSS) I'm handing you
 15 what's been previously marked as
 16 Exhibit 12027.
 17 And I'd like to ask about the
 18 e-mail that is at the bottom of the page that
 19 ends in 7824 from Margaret Kitt to Richard
 20 Heron, cc'ing you. And the subject is "HHE
 21 Expansion and Biomonitoring."
 22 And in the first sentence, she
 23 writes, Hi, Richard:
 24 "I just wanted to update you on
 25 NIOSH's plan to extend response worker
 00285:01 exposure characterization and quantification
 02 by incorporating a feasibility study on
 03 biomonitoring as a part of the expanded HHE
 04 efforts BP has asked NIOSH to do."
 05 Do you see that?
 06 A. Yes.
 07 Q. What did you understand Dr. Kitt
 08 to be doing when she forwarded -- when she
 09 sent this e-mail with its attachments to
 10 Dr. Heron?

Page 285:12 to 285:14

00285:12 A. I think she was trying to make
 13 him aware of this thinking that was going on
 14 amongst NIOSH scientists about biomonitoring.

Page 286:05 to 286:12

00286:05 Q. And if you turn to what's
 06 labeled Appendix A, ending in the number
 07 7833, it's entitled "Brief Description of a
 08 Feasibility Study of Biomonitoring During
 09 Deepwater Horizon Response."

10 Were you aware that there was a
 11 feasibility study of biomonitoring during
 12 Deepwater Horizon response proposed to BP?

Page 286:14 to 287:08

00286:14 A. Yes, I was aware that NIOSH
 15 scientists were considering the issue and --
 16 and talking about it and communicating about
 17 it and developing a pilot protocol, I guess,
 18 feasibility study.
 19 Q. (BY MS. CROSS) I'm showing you
 20 what's been previously marked as
 21 Exhibit 12025. I direct your attention to
 22 the -- the bottom e-mail. Again, if it's
 23 helpful, you can review the entire thing.
 24 The bottom e-mail is a Sunday,
 25 June 27th e-mail from you to a number of
 00287:01 NIOSH employees. Do you see that?
 02 A. Yes.
 03 Q. And the subject is "Conference
 04 call Monday (6/27) at 2:30 p.m.: Adding
 05 Biomonitoring to NIOSH Deepwater Horizon
 06 Exposure Monitoring."
 07 Do you see that?
 08 A. Yes.

Page 287:12 to 289:15

00287:12 Q. And in the e-mail, you
 13 express -- you indicate, "Exposure monitoring
 14 by means of air sampling is subject to
 15 several limitations when used episodically in
 16 a outdoor, dynamic environment."
 17 Do you see that?
 18 A. Yes.
 19 Q. And do you agree with that
 20 statement?
 21 A. Yes.
 22 Q. Do you disagree with any of the
 23 other statements you made in this e-mail?
 24 A. No.
 25 Q. I'm handing you what I'm marking
 00288:01 now as Exhibit 12260. The bottom e-mail
 02 appears to be an e-mail from Stacey Elmer,
 03 ASPR, with the subject, "On behalf of
 04 Dr. Lurie: Time-sensitive; Oil spill budget
 05 data request - Due by 8:00 p.m. tonight."
 06 Do you see that?
 07 A. Yes.
 08 Q. And the top e-mail is a response
 09 to that e-mail from you to Ms. Elmer in which
 10 you write, "Stacey:
 11 "Looked it over and the only
 12 entry for NIOSH that needs to be removed is

13 one for 250K for a feasibility study for
 14 biomonitoring. We have cancelled that
 15 because there is no more fresh oil exposure
 16 to sample for - God bless the cap."

17 Do you see that?

18 A. Yes.

19 Q. And what is your understanding
 20 of why the feasibility study for
 21 biomonitoring was not done?

22 A. I think the -- the folks in
 23 NIOSH who had been talking about it were --
 24 in their study pilot design were looking
 25 to -- were looking for exposed, highly
 00289:01 exposed individuals, and the -- the capping
 02 of the well changed that, that -- that design
 03 idea.

04 Q. Was it possible to carry out the
 05 feasibility study for biomonitoring after
 06 capping of the well?

07 A. Well, anything's possible. I
 08 think that the scientists would have judged
 09 it not to have a high -- as high a yield in
 10 terms of -- of findings. Many of the
 11 metabolites in biomonitoring are very short
 12 lived, so they would not be there very long.

13 Q. Has NIOSH done additional
 14 thinking regarding the need for a baseline
 15 monitoring procedure for future oil spills?

Page 289:17 to 290:10

00289:17 A. Yes, I -- I think that it's one
 18 of the -- of the lessons that we learned in
 19 a -- in a chemical spill of large scale like
 20 this if it happens again. As I mentioned
 21 before, we would probably be concerned about
 22 getting pre-exposure blood, urine, other
 23 bodily fluid samples from responders and then
 24 instituting a biomonitoring program so we'd
 25 be able to have a baseline.

00290:01 This thinking happened very late
 02 in -- in this response. Although at the
 03 time, retrospectively, we didn't know whether
 04 it would go on for another month or two or
 05 three. So it was only the termination of
 06 the -- of the spill itself that stopped the
 07 active thinking on it.

08 Q. (BY MS. CROSS) And what's the
 09 purpose of being able to have a baseline from
 10 a biomonitoring program, as you described it?

Page 290:12 to 290:23

00290:12 A. Well, because a lot of things
 13 you measure can have other sources. People

14 who smoke cigarettes can have elevations of
15 various -- there's 3,000 chemicals in
16 cigarette smoke, and so some of those are
17 similar to those that you might find from
18 other hydrocarbons, for instance.

19 So as we've talked about having
20 some comparison, if you see a big elevation
21 in someone's biomonitoring result, it could
22 be because they have exposure that's not
23 related to their work or response activities.

Page 291:05 to 291:08

00291:05 Q. (BY MS. CROSS) If there had
06 been a biomonitoring matrix in place when the
07 spill happened, would you have recommended on
08 NIOSH behalf that biomonitoring take place?

Page 291:10 to 291:17

00291:10 A. Well, it's hard to go back in
11 time to that. I certainly think that if we
12 had the capability to -- to do more expansive
13 pre-mobilization medical clearance placement,
14 et cetera, with blood samples and others, if
15 we had an IRB approval to do that, I think
16 it's something that we would have put on the
17 table.

Page 292:03 to 292:11

00292:03 Q. (BY MS. CROSS) Dr. Howard, you
04 testified about certain toxicity studies that
05 were done with regard to dispersants by
06 NIOSH; do you recall that?
07 A. Yes.
08 Q. And I'll hand you all five
09 articles right now which have been marked as
10 Exhibits 12261, 12262, 12263, 12264, and
11 12265. If you could take a look at those.

Page 292:15 to 292:21

00292:15 Q. (BY MS. CROSS) Do you recognize
16 the articles that I gave to you that have
17 been marked 12261 to 12265?
18 A. Recognize as...
19 Q. As the results of the animal
20 studies NIOSH requested that were done by its
21 scientists.

Page 292:23 to 293:12

00292:23 A. Yes, yes.
24 Q. (BY MS. CROSS) And what is your
25 understanding of where those studies were
00293:01 published?
02 A. They -- looks like they were all
03 published in the Journal of Toxicology and
04 Environmental Health.
05 Q. And do you know whether they
06 were subject to a peer-review process?
07 A. Yes, I believe that the Journal
08 of Toxicology and Environmental Health is --
09 peer reviews its -- its application articles
10 before publication.
11 Q. And have -- have you summarized
12 the results of those studies anywhere?

Page 293:14 to 295:12

00293:14 A. I think they're all on our
15 website, on the NIOSH website.
16 Q. (BY MS. CROSS) If I could turn
17 your attention to Tab 22, the document marked
18 as 12234.
19 A. Yes.
20 Q. There is a description here of
21 NIOSH toxicity testing related to the
22 Deepwater Horizon response on Page 10.
23 A. Yes.
24 Q. Do you understand that that
25 section of your lessons -- of NIOSH lessons
00294:01 learned relate to the toxicity testing that
02 is presented in those articles?
03 A. Yes.
04 Q. Are there -- is there any other
05 toxicity testing sponsored by NIOSH relating
06 to the Deepwater Horizon response that is
07 ongoing at this point?
08 A. I think Jeff Fadan, who is an
09 author on one of these papers, submitted a
10 proposal to look at oil toxicity in general,
11 not related to Deepwater Horizon, and I
12 believe that study -- his study was funded --
13 it's not completed yet. I think it was
14 fairly recently funded.
15 Q. And do you know what his title
16 is or his role at NIOSH?
17 A. He's in the health effects
18 laboratory division. He's a scientist.
19 Q. I'm handing you what's been
20 marked as Exhibit 12266.
21 Do you recognize this document
22 with the title "Protecting Workers in
23 Large-Scale Emergency Responses, NIOSH
24 Experience in the Deepwater Horizon
25 Response"?

00295:01 A. Yes.
02 Q. And what is it?
03 A. I'm sorry?
04 Q. What is it?
05 A. It's a -- an article that a
06 number of -- of NIOSH folks wrote on the
07 topic of -- of -- of the Deepwater Horizon.
08 It was meant to be another summary document
09 to be put into the published literature.
10 Q. And you're identified as one of
11 the authors of that document?
12 A. Yes.

Page 295:22 to 296:02

00295:22 Q. Dr. Howard, would you agree that
23 it's difficult to conduct baseline
24 biomonitoring of response workers being
25 mobilized to rapidly respond to an incident
00296:01 like the Deepwater Horizon event?
02 A. Yes.

Page 296:04 to 296:09

00296:04 Q. (BY MS. DeSANTIS) Would you
05 also agree that it's difficult to conduct any
06 biomonitoring in addition to baseline
07 biomonitoring of these same workers who are
08 rapidly responding to an incident like the
09 Deepwater Horizon event?

Page 296:11 to 296:14

00296:11 A. Yes.
12 Q. (BY MS. DeSANTIS) Are you aware
13 of any efforts of BP to impede any efforts to
14 conduct biomonitoring of response workers?

Page 296:16 to 296:16

00296:16 A. No.