

1 CAUSE NO. 05CV0337
2 MIGUEL ARENAZA, ELIZABETH) IN THE DISTRICT COURT
RAMON, DAVID G. CROW and)
3 JUANITA G. CROW, et al.)
))
4 VS.) 212TH JUDICIAL DISTRICT
))
5 BP PRODUCTS NORTH AMERICA)
INC., B.P. CORPORATION)
6 NORTH AMERICA INC., DON)
PARUS, AND JE MERIT)
7 CONSTRUCTORS, INC.) GALVESTON COUNTY, TEXAS

8
9 CAUSE NO. 05CV0337-A
10 IN RE: BP AMOCO EXPLOSION) IN THE DISTRICT COURT
MARCH 23, 2005)
11 COORDINATED DISCOVERY) 212TH JUDICIAL DISTRICT
PROCEEDINGS)
12) GALVESTON COUNTY, TEXAS

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15 *****

16 ORAL VIDEOTAPED DEPOSITION OF
17 MICHAEL P. BROADRIBB
18 FEBRUARY 15, 2006

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1 ORAL VIDEOTAPED DEPOSITION OF MICHAEL P.
 2 BROADRIBB, produced as a witness at the instance of
 3 the Plaintiffs and duly sworn, was taken in the
 4 above-styled and numbered cause on February 15, 2006,
 5 from 10:01 a.m. to 5:58 p.m., before Stephanie
 6 Barringer, Certified Shorthand Reporter in and for
 7 the State of Texas, reported by stenographic means at
 8 the offices of Fulbright & Jaworski, 1301 McKinney,
 9 Suite 5100, Houston, Texas, pursuant to the Texas
 10 Rules of Civil Procedure and the provisions stated on
 11 the record or attached hereto.
 12 Since this deposition has been realtimed and you
 13 may be in possession of a rough draft form, please be
 14 aware that there may be a discrepancy regarding page
 15 and line numbers when comparing the realtime draft
 16 and the final transcript. Also, please be aware that
 17 the realtime screen and the unedited, uncertified
 18 rough draft transcript may contain untranslated
 19 steno, a misspelled proper name and/or nonsensical
 20 English word combinations. All such entries are
 21 corrected in the final certified transcript. There
 22 also may be persons receiving the realtimed feed
 23 outside of the deposition room, but the reporter has
 24 given this access only to known attorneys of record
 25 and/or their experts.

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1 THE VIDEOGRAPHER: On the record,

2 February 15th, 2006 at 10:01 a.m. beginning Tape 1.

3 MICHAEL P. BROADRIBB,

4 having been first duly sworn, testified as follows:

5

6 EXAMINATION

7 Q. (BY MR. WILLIAMS) Good morning, sir.

8 Would you state your name for the record.

9 A. Michael Peter Broadribb.

10 Q. Mr. Broadribb, my name is John Eddie

11 Williams. I represent the other side in this case.

12 I will be asking you questions.

13 Who do you work for?

14 A. BP America, Inc.

15 Q. And your title?

16 A. Senior consultant process safety.

17 Q. What is process safety?

18 A. Process safety is the identification of

19 hazards, risks and then the management systems that

20 prevent, control and mitigate those hazards and

21 risks.

22 Q. So for instance, process safety would

23 involve something as common sense perhaps as you

24 don't overfill a vessel with hazardous chemicals?

25 A. That would be one consideration.

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1 Q. Right. And that's one of the things that

2 actually happened on March 23rd at Texas City is

3 they overfilled this -- they overfilled two towers

4 to the extent that it shot, that this hazardous

5 liquid shot out like a geyser, correct?

6 MR. DENNY: Objection, form.

7 A. I investigated the incident on March the

8 23rd and the raffinate splitter was certainly

9 filled to a higher level than it should have been

10 operating at.

11 MR. WILLIAMS: No, sir, I object.

12 That is nonresponsive.

13 Q. (BY MR. WILLIAMS) I asked you a simple

14 question, sir. There were two towers on March 23rd

15 that were overfilled to the extent that the second

16 tower, the F-20 spewed hazardous chemicals out of

17 the top of it like a geyser. Is that a true

18 statement?

19 MR. DENNY: Objection, form.

20 A. The raffinate splitter is the only tower

21 that I think was involved in the incident. That

22 was a distillation tower with 70 distillation

23 trays. That was certainly filled to a higher level

24 than it was supposed to operate at. Subsequently,

25 the -- due to the high temperatures involved, there

<p style="text-align: right;">Page 10</p> <p>1 was vaporization at the bottom of the tower which 2 led to the contents of the tower being lifted up 3 and over into the overhead line. Due to the 4 hydrostatic head of liquid in the overhead line, 5 the relief valves opened through to the F-20 6 blowdown drum and stack. The blowdown drum and 7 stack is not actually termed a tower but it's a 8 vessel for handling either maintenance fluids 9 drained from the unit, process unit, or relief 10 stream from the relief valves. 11 MR. WILLIAMS: Objection, 12 nonresponsive. 13 Q. (BY MR. WILLIAMS) Let me rephrase it 14 and, sir, as I understand it, on March 23rd, the 15 raffinate tower overflowed with liquid and it was 16 released into the F-20 stack and it -- and this 17 highly hazardous liquid spewed out of the top of 18 that stack like a geyser, correct? 19 MR. DENNY: Objection, form. 20 A. The fluids that were, as I said earlier, 21 were discharged through the relief valves to the 22 F-20 blowdown drum were -- was cold hydrocarbon 23 primarily which built up in the F-20 blowdown drum 24 and stack to the extent that it -- for about one 25 minute or thereabouts, there was a geyser-like</p>	<p style="text-align: right;">Page 12</p> <p>1 country are you from? 2 MR. DENNY: Objection, form. 3 A. I was born in the United Kingdom. 4 MR. WILLIAMS: What is your 5 objection to the question. 6 MR. DENNY: It's argumentative. 7 MR. WILLIAMS: It's argumentative 8 to ask him what country he is from? 9 MR. DENNY: The way you asked him. 10 The way you asked him, Johnny. 11 MR. WILLIAMS: How? 12 MR. DENNY: I just think it is, so 13 go ahead and ask your question. 14 Q. (BY MR. WILLIAMS) What country are you 15 from, sir? 16 A. I was born in the United Kingdom. 17 Q. You are an Englishman? 18 A. Yes, I was born in England. 19 Q. Okay. Now, here in the -- are you an 20 American citizen? 21 A. No. 22 Q. Here in America you took an oath and the 23 oath was to tell the truth, the whole truth and 24 nothing but the truth. Now, are you going to 25 follow that oath?</p>
<p style="text-align: right;">Page 11</p> <p>1 discharge of hydrocarbons from the top of the 2 blowdown stack. 3 MR. WILLIAMS: Objection, 4 nonresponsive. 5 Q. (BY MR. WILLIAMS) My question is simple. 6 Step one, was there an overflow of the raffinate 7 tower on March 23rd of hazardous chemicals? 8 A. On March the 23rd, the -- there was a 9 high level in the raffinate splitter tower. Due to 10 vaporization of hydrocarbons in the bottom of the 11 tower, the high level of liquid in the tower was 12 lifted up and over into the overhead line from the 13 top of the tower. 14 MR. WILLIAMS: Objection, 15 nonresponsive. 16 Q. (BY MR. WILLIAMS) Let's try it again. 17 March 23rd, did the raffinate tower overflow? 18 A. On March the 23rd, as I just said, the 19 high level in the raffinate tower was lifted up and 20 over into the overhead line from the raffinate 21 splitter tower due to vaporization in the bottom of 22 the tower. 23 MR. WILLIAMS: Objection, 24 nonresponsive. 25 Q. (BY MR. WILLIAMS) You apparently -- what</p>	<p style="text-align: right;">Page 13</p> <p>1 A. I believe I have. 2 Q. All right. Do you intend to stick with 3 that oath and to tell the whole truth today? 4 A. Yes. 5 Q. We have your word on it? 6 A. Yes. 7 Q. Did the raffinate splitter overflow on 8 March 23rd? Was there an overflow of that tower? 9 A. I think I just said that -- 10 Q. It's a yes or no answer and you can say 11 "yes" or "no" or "I don't know." 12 A. The raffinate splitter tower -- 13 Q. Which one is it, sir? 14 A. -- had a high level in it, approximately 15 on a mass balance basis of about 137 feet. 16 Q. I didn't ask you any of that. 17 MR. WILLIAMS: I object as 18 nonresponsive. 19 Q. (BY MR. WILLIAMS) I am trying to put it 20 in a simple form and ask you in a simple way, sir, 21 so we can get -- we will get to details later. 22 Step one, did the raffinate tower 23 overflow on March 23rd? 24 A. May I complete the answer that I was 25 trying to give you from the previous question?</p>

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1 Q. It's up to you but you are going to be
 2 wasting your time because I am trying to focus on
 3 simple questions and get a direct answer, if I can,
 4 sir. And I appreciate you focusing on the
 5 questions and not trying to give the speeches. But
 6 if you feel compelled to give a speech, then you
 7 have the floor.
 8 A. I would like to give an accurate answer
 9 to your question, if I may.
 10 Q. I would like you to give an accurate
 11 answer, and so let's start over. Here's the simple
 12 question.
 13 March 23rd, Texas City refinery,
 14 the raffinate tower, did -- was there an overflow
 15 of liquid from that tower?
 16 A. I think I just tried to explain to you
 17 that there was a high level in the raffinate tower,
 18 a higher level than there should have been and due
 19 to vaporization in the bottom of the tower, that
 20 liquid level was lifted up and over into the
 21 overhead line.
 22 Q. Did I ask you why? Did I ask you why did
 23 it? Did you -- because we have a communication
 24 problem. Did you understand me to ask why?
 25 A. I was trying to give you a full and

Page 15

1 complete answer.
 2 Q. I am trying to get just some facts. Fact
 3 one, did the raffinate tower on March 23rd
 4 overflow?
 5 A. There was a flow of liquid from the tower
 6 into the overhead line.
 7 Q. Is that an overflow?
 8 A. It depends on your definition of an
 9 overflow.
 10 Q. Well, what in the world is the English
 11 definition of overflow that you are using? I
 12 thought it was a simple term. So help me
 13 understand why we are not communicating.
 14 A. As I said, the -- there was a high level
 15 in the -- the tower. It was lifted up by
 16 vaporization in the bottom of the tower --
 17 MR. WILLIAMS: Objection,
 18 nonresponsive.
 19 A. -- and that flowed into the overhead
 20 line.
 21 Q. (BY MR. WILLIAMS) You are not focusing,
 22 Mr. Broadribb. If we can simple -- if we can try
 23 and make this simple.
 24 What's the difference between a
 25 high level -- I understand -- what's the difference

Page 16

1 between, in your mind, an overflow and high level?
 2 What is wrong with the term "overflow"? Do you not
 3 understand overflow?
 4 A. My definition of an overflow would be
 5 where the liquid level builds to such a point that
 6 it can no longer be contained by the vessel it's
 7 in.
 8 Q. Okay. Let's redefine it.
 9 An overflow is where there is
 10 more -- the liquid comes out the top or comes out
 11 of the pipe in the top. Did it overflow on
 12 March 23rd, did the liquid overflow out the top of
 13 the raffinate splitter?
 14 A. The liquid flowed into the overhead line
 15 which is in the top of the tower, yes.
 16 Q. It -- It went -- it overflowed out the
 17 top. Is that a true statement?
 18 A. The overhead line comes off of the top of
 19 the tower, yes.
 20 Q. Okay. So, and is the chemical that
 21 overflowed and went into the top -- this top line
 22 on March 23rd, was that a highly hazardous
 23 chemical?
 24 A. It's a flammable hydrocarbon. I am not
 25 certain whether it meets the definition of highly

Page 17

1 hazardous.
 2 Q. Okay. You were involved in the official
 3 investigation for your company, correct?
 4 A. That's correct.
 5 Q. Did anybody take the time to look to see
 6 if the chemical involved was classified, met the
 7 definition of a highly hazardous chemical?
 8 A. Certainly we looked at the nature of the
 9 hydrocarbons and the species of hydrocarbons that
 10 were involved in the incident.
 11 MR. WILLIAMS: Objection,
 12 nonresponsive.
 13 Q. (BY MR. WILLIAMS) Did anybody on your
 14 team, to your knowledge, look to see if the
 15 chemical involved on March 23rd met the
 16 government's definition of a highly hazardous
 17 chemical?
 18 A. The chemicals involved in the incident
 19 certainly are covered by the OSHA 1910.119
 20 regulation which covers potentially hazardous
 21 chemicals.
 22 Q. Therefore, is the chemical involved on
 23 March 23rd a highly hazardous chemical?
 24 A. It is a flammable hydrocarbon that under
 25 certain circumstances is potentially hazardous.

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1 MR. WILLIAMS: Objection,
 2 nonresponsive.
 3 Q. (BY MR. WILLIAMS) Is the chemical
 4 involved on March 23rd, does it meet the
 5 government's definition set forth by OSHA of a,
 6 quote, "highly hazardous chemical"?
 7 A. I would have to see the OSHA definition
 8 to be able to answer that question.
 9 Q. The answer is you don't know?
 10 A. I am uncertain at this moment in time. I
 11 would like to check the OSHA definition.
 12 Q. So back to my point, during the official
 13 investigation, did you or anybody, to your
 14 knowledge, ever take the time to see if the
 15 chemical involved fits the definition of a highly
 16 hazardous chemical as set forth by OSHA?
 17 A. We certainly confirmed that the chemicals
 18 involved were covered by the OSHA 1910.119
 19 regulation.
 20 Q. Did you take the next step to see if it
 21 fit the definition within those regulations of a,
 22 quote, "highly hazardous chemical"?
 23 A. I am uncertain. We had a -- a team
 24 involved in the investigation, and I was only one
 25 of a team of ten people. So I am uncertain whether

Page 19

1 any of the other nine did what you just asked.
 2 Q. Well, you certainly didn't and nobody
 3 reported to you from the team that anybody did the
 4 extra step to see if the chemical involved met the
 5 definition of highly hazardous chemical, true?
 6 A. Not that I am aware of.
 7 Q. Okay. Who was the principal writer of
 8 the final report on the incident?
 9 A. I wrote the majority of it.
 10 Q. Okay. Can you -- what majority?
 11 Majority means -- could mean 51 percent? It could
 12 mean 99 percent. If you could enlighten us?
 13 A. Probably 90 plus percent. The report was
 14 a team effort, though, and went through numerous
 15 drafts which the team members were asked to comment
 16 upon and provided their input and feedback.
 17 MR. WILLIAMS: Objection to
 18 nonresponsive after "90 percent."
 19 Q. (BY MR. WILLIAMS) Your team, who
 20 appointed your team?
 21 A. I have to believe someone in senior
 22 management. I am guessing -- I would have to
 23 speculate. I am -- I believe it may have been
 24 Ross Pillari, the president of BP North America,
 25 but that would be speculation.

Page 20

1 Q. So there was no clear, as far as you are
 2 concerned, no clear communication as to who in
 3 upper management appointed you to this team?
 4 A. On March the 23rd, I was over -- I was in
 5 a different country. I was not in the U.S; and I
 6 was the last to arrive, the last member of the
 7 investigation team to arrive. By the time I
 8 arrived, the terms of reference covering the scope
 9 and membership of the team had already been
 10 determined, and so I wasn't, sort of, party to the
 11 decisions that went into -- went into that.
 12 MR. WILLIAMS: Objection,
 13 nonresponsive.
 14 Q. (BY MR. WILLIAMS) My question is: Was
 15 there any clear communication to you from upper
 16 management so that you could determine who it was
 17 that appoint -- that made the decision to place you
 18 on this team?
 19 A. I had a phone call from one of the senior
 20 members of the investigation team asking me to be a
 21 part of it.
 22 Q. Who was that?
 23 A. Tim Holt.
 24 Q. And what's his title?
 25 A. He -- he was a senior business unit

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1 leader in BP exploration and production; and during
 2 the investigation, he was the deputy investigation
 3 team leader.
 4 Q. What is your area of expertise?
 5 A. I am a chemical engineer; and for the
 6 last 20 years, I have been involved in process
 7 safety.
 8 Q. Are you an expert in process safety?
 9 A. After 20 years I think I am still
 10 learning, but some people regard me as being more
 11 experienced than many others.
 12 Q. Do you speak on process safety?
 13 A. I have given presentations, yes.
 14 Q. In fact, your business card, what does it
 15 say with regard to process safety? In fact, I
 16 think it -- I believe it says senior consultant --
 17 A. That's correct.
 18 Q. -- on process safety?
 19 A. That's correct.
 20 Q. Who is above you when it comes to process
 21 safety at BP Chemicals? Who is more of an expert
 22 than you?
 23 A. I don't work for BP Chemicals.
 24 Q. I am sorry. BP North America. My
 25 apology. Let me rephrase the question.

Page 22

1 In the BP North America company,
 2 who has more expertise above you with regard to
 3 process safety?
 4 A. Probably few. There may be one or two
 5 individuals of similar background and experience.
 6 Q. Fair to say then that within BP North
 7 America there may be others that have similar
 8 experience; but no one has more experience in the
 9 area of process safety than you, Mr. Broadribb?
 10 A. That would be a fair statement, I
 11 believe.
 12 Q. Before March 23rd, when was the last time
 13 that you visited the Texas City refinery?
 14 A. I think that would have been prior to the
 15 commissioning of the cogeneration power plant. I
 16 am guessing that that was 2003 or 2004.
 17 Q. Do you --
 18 A. That particular cogeneration plant is
 19 actually fenced off as a set preventative at the
 20 Texas City site.
 21 Q. Had you ever visited the ISOM unit at the
 22 Texas City refinery before the March 23 explosion?
 23 A. No.
 24 Q. Had you ever reviewed or studied the
 25 process safety or lack thereof in the ISOM unit

Page 23

1 before March 23?
 2 A. No.
 3 Q. In fact, once you did study process
 4 safety at the ISOM unit, did you find it to be
 5 lacking in its -- the standards that were used?
 6 A. I believe that the process safety program
 7 at the ISOM unit met the appropriate standards.
 8 However, during the course of the investigation, it
 9 became apparent that those standards were not
 10 always followed.
 11 Q. The bottom line is with regard to process
 12 safety at the ISOM unit, people lacked training on
 13 process safety, didn't they?
 14 A. There was a lack of understanding of some
 15 of the elements of process safety.
 16 Q. Right. And lack of understanding comes
 17 from -- from a lack of training, right?
 18 A. That -- that may be one consideration.
 19 Q. Okay. And you also found that with
 20 regard to process safety that people were -- lacked
 21 training in identifying significant risks there in
 22 the ISOM unit, right?
 23 A. There appeared to be a low awareness of
 24 risk.
 25 Q. And a lack of training with identifying

Page 24

1 risk, correct?
 2 A. There were a number of people who had
 3 been trained in techniques such as hazard and
 4 operability studies, but that level of
 5 understanding was not throughout the workforce
 6 involved with the ISOM unit.
 7 Q. If you take the ISOM unit, sir, and look
 8 at it, there was a definite lack of understanding
 9 and training with regard to process safety that
 10 your investigation revealed, correct?
 11 A. Certainly our investigation identified
 12 that certain members of the workforce did not have
 13 a full appreciation of process safety.
 14 Q. And that included management, didn't it?
 15 A. That included some of the management
 16 team, yes.
 17 Q. Well, in fact, who was head of the safety
 18 department on the day of the explosion? Was his
 19 name Joe Barnes that --
 20 A. That name is familiar. I did not -- I
 21 did not review the organization of the HSE
 22 department.
 23 Q. Okay. Well, take it from me, because
 24 Mr. Barnes has been deposed, he was the head of
 25 that department; and should Mr. Barnes have an

Page 25

1 understanding and knowledge of process safety if he
 2 is going to be head of HSSE?
 3 A. I think it depends on where process
 4 safety expertise is organized within the overall
 5 site organization.
 6 Q. Well, wait a minute. He is head of
 7 health, security, safety and environment. He has
 8 got the title, and he is the head of the
 9 department. Is it reasonable, sir, to expect that
 10 the man who is head of the department have some
 11 training on process safety? Is that a reasonable
 12 expectation?
 13 A. Process safety is sometimes that
 14 expertise is within different parts of the
 15 organization and not necessarily within the HSE
 16 function. When the health, safety and
 17 environmental function, clearly safety is part of
 18 that title, that is often referred to as
 19 "occupational safety" or "personal safety."
 20 Sometimes process safety is within a different part
 21 of the organization.
 22 Q. So who was in charge of process safety at
 23 the Texas City refinery on March 23?
 24 A. I believe it was a gentleman by the name
 25 of Bill Ralph.

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1 Q. Right. And who was Bill Ralph's boss?
 2 Joe Barnes, correct?
 3 A. I do not know.
 4 Q. So -- well, take it from me it was
 5 Joe Barnes.
 6 Would you expect Bill Ralph's boss
 7 to at least have read the process safety
 8 regulations?
 9 A. I would expect Joe Barnes to have an
 10 understanding of some of the elements of process
 11 safety. For example, I would expect Joe Barnes to
 12 have an understanding of incident investigation,
 13 emergency response and maybe an appreciation of the
 14 need for operating procedures, safety procedures
 15 and so forth, which are all elements of process
 16 safety management.
 17 Q. Well, would you have expected him to have
 18 read the regulations was my question?
 19 A. I would not necessarily expect him to
 20 have read the regulations if he has somebody else
 21 who has that expertise within his organization.
 22 However, I would expect him to have a basic
 23 understanding of some of the elements of process
 24 safety --
 25 Q. Well --

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1 A. -- management.
 2 Q. -- you investigated it, so tell us what
 3 understanding Joe Barnes, the head of safety, had
 4 on March 23rd regarding process safety?
 5 A. I did not investigate Joe Barnes'
 6 training and experience.
 7 Q. Well, it would have been a short
 8 investigation because he had no training or
 9 experience in it. Did you know that, sir?
 10 MR. DENNY: Objection, form.
 11 A. I did not know that.
 12 Q. (BY MR. WILLIAMS) Does it -- is that
 13 inappropriate for the head of safety to; A, never
 14 had any college training on process safety; B,
 15 never have attended any formal course on process
 16 safety; C, never have read the regulations on
 17 process safety and D, not had any reference books
 18 or books that he had ever read or in his possession
 19 on process safety? Is that an appropriate standard
 20 for the head of safety at Texas City refinery?
 21 A. I would expect the head of safety at
 22 Texas City refinery to have a basic understanding
 23 of the elements of process safety.
 24 Q. Well, did you investigate -- new
 25 question.

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1 Why did you not investigate to
 2 find out what I just revealed to you, that the head
 3 of safety that day didn't know top from bottom with
 4 regard to process safety?
 5 MR. DENNY: Objection, form.
 6 A. My role at Texas City was to investigate
 7 circumstances surrounding the -- the incident that
 8 occurred on March the 23rd on the ISOM unit, and I
 9 can define my activities to the ISOM unit to
 10 establish the facts and determine the root causes
 11 that led to the incident.
 12 Q. (BY MR. WILLIAMS) And one of the root
 13 causes was lack of understanding of process safety,
 14 true?
 15 A. One of the contributory factors to the
 16 incident was that those involved with the operation
 17 on the ISOM unit on March the 23rd appeared to have
 18 a poor understanding of process safety.
 19 Q. Not only did the people in the ISOM unit
 20 have a poor understanding of process safety, but
 21 the head of safety had zero understanding of
 22 process safety is what I am trying to find out why
 23 you didn't investigate him, why you stopped at the
 24 ISOM unit?
 25 A. Because my terms of reference required me

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1 to investigate the -- the incident that occurred on
 2 the ISOM on March the 23rd.
 3 Q. But, sir, why did you not say, gosh, if
 4 the ISOM people have a poor understanding of
 5 process safety, let's see how far up this flaw
 6 goes? Why did y'all stop and not do --
 7 A. We --
 8 Q. -- a thorough investigation that would
 9 have followed up on that lead? Who stopped you, I
 10 guess, is the question?
 11 MR. DENNY: Objection, form.
 12 A. No one stopped me from conducting the --
 13 the investigation. The person who is conducting an
 14 investigation -- an incident investigation is to
 15 determine the root causes such that recommendations
 16 can be made to prevent a reoccurrence.
 17 Now, in conducting the
 18 investigation of the incident on March the 23rd, I
 19 went as far as I felt was appropriate to be able to
 20 generate a large number of recommendations that are
 21 in the final report that should ensure that if
 22 Texas City refinery properly followed through and
 23 resolved all of those recommendations, a similar
 24 occurrence can be prevented in the future.
 25 Q. (BY MR. WILLIAMS) Did you investigate

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1 what amount of training people had received on
 2 process safety?
 3 A. I inquired of those individuals
 4 immediately associated with the operation of the
 5 ISOM unit. We certainly looked at the training
 6 that they received in process safety and in other
 7 aspects of their job.
 8 Q. Well, what training did they receive on
 9 process safety?
 10 A. We found that back in 1992 when OSHA
 11 promulgated the process safety management
 12 regulation that there had been quite a large
 13 program of awareness, building awareness and
 14 expertise in aspects of process safety management,
 15 but that hadn't always been effectively refreshed
 16 in the sort of intervening years that followed.
 17 Various individuals on the ISOM unit had received
 18 specific training on some of the elements of
 19 process safety management.
 20 For example, the operators had
 21 received quite a bit of training around procedures,
 22 operating procedures, safe work practices and
 23 various other things associated with their job and
 24 those are all sort of elements of process safety
 25 management.

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1 MR. WILLIAMS: Objection,
 2 nonresponsive.
 3 Q. (BY MR. WILLIAMS) Did you find, sir,
 4 that with regard to the ISOM unit there had been,
 5 let's say in the ten years before this explosion,
 6 any type of training that was specifically labeled
 7 and identified as process safety management
 8 training?
 9 A. We didn't find anything that was
 10 specifically labeled as process safety management,
 11 but we did find a large number of training
 12 materials that were related to some of the elements
 13 of process safety management.
 14 MR. WILLIAMS: Objection to the
 15 nonresponsive of everything after the first
 16 management.
 17 Q. (BY MR. WILLIAMS) Did you find any
 18 specific training materials with regard to the ISOM
 19 unit that discussed hazard recognition and risk
 20 recognition with regard to process safety?
 21 A. I am trying to remember. I think we
 22 found some evidence that a few individuals had been
 23 involved in and received some basic training in
 24 hazard and operability studies. Some of the
 25 operators on the ISOM unit had participated in

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1 management of change and process hazard analysis
 2 activities as a result of a number of changes and
 3 modifications on the unit, but I think that -- I
 4 don't recall any other hazard identification
 5 training and so...
 6 Q. Let's get to the point. The training
 7 that these -- the overall training with regard to
 8 process safety management of the totality of the
 9 people at the ISOM unit, would you give that a
 10 passing grade from the standpoint of process
 11 safety?
 12 MR. DENNY: Objection to form.
 13 A. I am not sure I know what a passing grade
 14 is.
 15 Q. (BY MR. WILLIAMS) Well, it's -- did
 16 you -- meaning when you went to school in England
 17 you either failed or you passed, right?
 18 A. I guess.
 19 Q. Well, what do you mean you guess? I
 20 don't understand you.
 21 A. Well, I am trying to equate that to your
 22 reference to the ISOM unit. Can you ask the
 23 question a different --
 24 Q. Sure.
 25 A. -- a different way.

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1 Q. When you went to school in England,
 2 did -- did you either pass courses or fail courses?
 3 You understand passing or failing, right?
 4 A. Yes.
 5 Q. Okay. You, looking at the knowledge that
 6 you have from your investigation of the overall
 7 training on process safety that was given to the
 8 workforce and the management at the ISOM unit
 9 before March 23, do you, Michael Broadribb, give it
 10 a passing grade; or do you give it a failing grade?
 11 A. I think that some individuals had a
 12 better understanding than others and may have been
 13 sufficient to meet a passing grade, but certainly
 14 there were some of the supervision and workforce
 15 who did not have the level of understanding that I
 16 would have wished them to have had.
 17 Q. And they would have gotten a failing
 18 grade?
 19 A. In my -- from my perspective, yes.
 20 Q. Okay. Who's responsible for training the
 21 workforce and making sure that people appreciate
 22 and understand process safety? Is that management?
 23 A. Certainly I would expect management to be
 24 accountable for running a safe and efficient
 25 operation and one of the considerations would be

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1 the training and competency of the workforce.
 2 Q. Okay. Are you a member of various
 3 organizations?
 4 A. I am a member of one or two
 5 organizations, yes.
 6 Q. Are you a member of the Center for
 7 Chemical Process Safety, CCPS?
 8 A. I -- I represent BP on that. BP is a
 9 member of the chemical -- of the Center for
 10 Chemical Process Safety.
 11 Q. And you are on various boards there or
 12 committees. You are chairman of the L & G
 13 committee; and you are members of other various
 14 committees, right?
 15 A. That is correct.
 16 Q. And you teach and speak to other process
 17 safety experts about process safety issues,
 18 correct?
 19 A. I have given a number of presentations,
 20 yes.
 21 Q. Okay. Now, do you find that the
 22 publications put out by the Center for Chemical
 23 Process Safety, do you find that those are
 24 authoritative to people within your field of
 25 process safety?

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1 A. By and large, the majority of their
 2 publications are of a high quality.
 3 Q. Do you find them authoritative in your
 4 field of expertise?
 5 A. By and large, yes.
 6 Q. Okay. And in fact, one of the things
 7 that's preached by the Center for Chemical Process
 8 Safety is that it is management's responsibility
 9 and duty to make sure that workers and other
 10 members of management acknowledge and understand
 11 the significance of process safety? It goes all
 12 the way to the top, right?
 13 A. One of the, I believe, sort of policies
 14 of CCPS in their beliefs is that process safety is
 15 an important consideration in the operation of
 16 process plants and that management should have, you
 17 know, a basic concern for the safe and efficient
 18 operation of those plants.
 19 Q. Okay. How many times have you heard Ross
 20 Pillari before March 23, your ultimate boss of
 21 North America, lecture or talk about process safety
 22 or bring the subject up?
 23 A. I am not sure I have -- had actually met
 24 or heard Ross Pillari before. I met him during the
 25 course of the investigation.

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1 Q. Okay. Well, the head of the plant on the
 2 day of the explosion, his name was what?
 3 A. Of the plant?
 4 Q. Yes, sir.
 5 MR. DENNY: ISOM.
 6 Q. (BY MR. WILLIAMS) The big plant.
 7 A. Of the Texas City site?
 8 Q. Yes.
 9 A. I believe it was Don Parus.
 10 Q. Correct. So Don Parus, the head of the
 11 Texas City site, had you ever heard him do anything
 12 to make sure that people understood process safety
 13 or to make a commitment from management's viewpoint
 14 as to the importance of process safety?
 15 A. Before this investigation, I had never
 16 met or heard Don Parus. I didn't even know his
 17 name.
 18 Q. Well, I am looking at a book here, sir,
 19 that's called "Guidelines for Preventing Error in
 20 Human Process Safety" put out by the Chemical --
 21 the Center for Chemical Process Safety. Are you
 22 familiar with this book?
 23 A. I believe that may be a new publication.
 24 Is it?
 25 Q. 1994, it looks like to me.

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1 A. Okay.
 2 Q. Is that new to you, 1994?
 3 A. I knew there was a very recent project
 4 that CCPS had on human -- human factors, and I was
 5 thinking that that was the one.
 6 Q. Well, let me ask you: On page 145 here.
 7 Let me hand you this book, if I may. If you look
 8 at page 145 there, it talks about management
 9 commitment. Do you see there where it says, the
 10 sentence says, "Not surprisingly, management
 11 commitment emerges as the dominant factor
 12 influencing safety performance." Now, is that a
 13 true statement?
 14 A. I think I would have to read the context
 15 that it was being made in but -- to be able to
 16 comment properly on that.
 17 Q. Well --
 18 A. But certainly it's an important
 19 consideration. I would agree.
 20 Q. So we agree that an important, and, of
 21 course, CCPS says -- uses the word "dominant
 22 factor" is management's commitment to safety. You
 23 and I can agree on that?
 24 A. As I say, I would have to read all of the
 25 context to be able to --

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1 Q. No, no, forget the book.
 2 A. All right.
 3 Q. I am asking -- you are the top expert on
 4 process safety for BP North America. So I am
 5 asking your opinion.
 6 Would you agree with this
 7 statement: Management's commitment emerges as a
 8 dominant factor influencing safety performance?
 9 Is that a true statement?
 10 A. I would agree that it's an important
 11 factor.
 12 Q. What's more important than management's
 13 commitment? Explain it to me.
 14 A. I would have to think of all the issues
 15 involved.
 16 Q. Well, as we sit here today, can you think
 17 of anything that's more important about influencing
 18 safety performance than the commitment of
 19 management?
 20 A. Not off the top of my head, but, you
 21 know, I --
 22 Q. Okay.
 23 A. It...
 24 Q. Would you agree with this statement, that
 25 the creation and maintenance of a safety culture

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1 requires strong leadership by senior management?
 2 A. Can you read that to me one more time,
 3 please?
 4 Q. The creation and maintenance of a safety
 5 culture requires strong leadership by senior
 6 management.
 7 A. That's certainly important, yes.
 8 Q. You agree with that statement?
 9 A. Yes.
 10 Q. And do you agree that this means that the
 11 attitude of senior management must be demonstrated
 12 in practical ways so that all concerned are
 13 convinced of its commitment?
 14 A. That can be helpful, yes.
 15 Q. Is it true, sir, that one of the
 16 situations most revealing of senior management's
 17 real attitude to safety is its response to a
 18 manager's decision in a specific case not to act in
 19 a way which he considers unsafe even though there
 20 is immediate financial penalty, true?
 21 A. Again, can you read that to me one more
 22 time, please?
 23 Q. Sure. One of the situations most
 24 revealing of senior management's real attitude to
 25 safety is its response to a manager's decision in a

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1 specific case not to act in a way which he
 2 considers unsafe even though there is an immediate
 3 financial penalty.
 4 A. Certainly I would expect any reputable
 5 manager to -- to carefully balance the question of
 6 safety and cost.
 7 Q. Well, what this statement that I read to
 8 you says is not only do you balance safety and
 9 cost, but that you really kind of test somebody's
 10 commitment to safety when they do something that
 11 harms the bottom line, but they do it in the name
 12 of safety. That's when you really see if it's
 13 all -- if it's just talk about safety or if they
 14 really are committed. That's a good test, isn't
 15 it?
 16 A. That's certainly one consideration, yes.
 17 Q. You bet.
 18 And another principle of
 19 leadership is the prompt correction of deficiencies
 20 by management. A deficiency should not be allowed
 21 to persist. It should be corrected, true?
 22 A. It depends again what the definition of
 23 deficiency is. There are some deficiencies where
 24 some other safety measure that's taken may be
 25 appropriate to, at least as a temporary measure, to

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1 ensure that, you know, the situation is safe.
 2 Q. Your investigation revealed numerous
 3 safety deficiencies in the ISOM unit before the
 4 explosion, correct?
 5 A. I am not sure I would necessarily agree
 6 with that statement.
 7 Q. Oh, well, tell me and the jury then
 8 how -- when was the last study done, complete study
 9 done of the relief valves in the ISOM unit.
 10 A. My understanding is that the most recent
 11 study of the relief system was, I believe, 1986. I
 12 would have to check my -- my report but --
 13 Q. Okay. So --
 14 A. -- from memory --
 15 Q. That shows a real high degree of standard
 16 to go 19 years between doing a complete relief
 17 valve study. Is that what you are telling us?
 18 A. One would need to look at the number of
 19 potential changes that have occurred in that
 20 intervening period.
 21 Q. Hey, you're the expert. You're the guy
 22 that investigated. Give me the reason why your
 23 company blew off doing a complete relief valve
 24 study for 19 years.
 25 A. I was asked to investigate the incident

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1 on March the 23rd.
 2 Q. Well, why --
 3 A. So I --
 4 Q. The question is: Why would you blow it
 5 off for 19 years?
 6 MR. DENNY: Objection, form.
 7 A. I did not investigate that.
 8 Q. (BY MR. WILLIAMS) Well, is that good
 9 management practice?
 10 A. It would be good management practice if
 11 there were no significant changes made to the plant
 12 in that intervening period.
 13 Q. Well, wait a minute, you know, there
 14 is -- you are under oath.
 15 You know there was significant
 16 changes in that 19 years made to the ISOM unit,
 17 right?
 18 A. Again, I have not looked in great detail
 19 at the changes that occurred on the unit in that
 20 inter --
 21 Q. Well, why?
 22 A. -- intervening period.
 23 Q. Why not? Didn't this jump out to you as
 24 a red flag, "Hell, they haven't done a study of the
 25 complete relief valves in 19 years"?

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1 Doesn't that raise a red flag to
 2 you as a safety expert?
 3 A. Certainly we identified that as a fact
 4 within the investigation and drew attention to it
 5 but I am not an expert on relief valve systems.
 6 Q. Okay. So --
 7 A. And so I would expect someone who was an
 8 expert to have a look at that.
 9 Q. Right.
 10 A. And be able to answer.
 11 Q. I am telling you that -- well, you tell
 12 me then who said, "Hey, this is -- this is the red
 13 flag. We know for a fact it hadn't been reviewed
 14 in its entirety, the relief system, for 19 years"?
 15 Who was it then that went the next
 16 step and investigated why it had been ignored for
 17 19 years?
 18 A. I am not sure who has investigated that.
 19 Q. Well, who -- did y'all drop the ball on
 20 it?
 21 A. Can you rephrase the question, sir.
 22 Q. Yes. We have established it was a known
 23 fact to the investigation team that the relief
 24 valve study, a complete study had not been done for
 25 19 years before the explosion. That fact was

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1 established, correct?
 2 A. That's correct.
 3 Q. What did y'all do about it other than
 4 just saying that's a fact? Did you ever stop and
 5 say, wait a minute, we better study why a complete
 6 relief valve study had been ignored for 19 years?
 7 A. I believe there is a recommendation in
 8 the report to evaluate the relief system on the
 9 ISOM unit.
 10 Q. Sure but why -- my question is why did
 11 you not investigate why -- the reason why this has
 12 been ignored for 19 years?
 13 A. I was asked to investigate the
 14 circumstances around the incident on March the
 15 23rd and that was the job that I have done.
 16 Q. I understand, but doesn't it raise a red
 17 flag to you that there is a safety culture problem
 18 if relief valves had not had a complete study in
 19 that ISOM unit for 19 years?
 20 A. I was sufficiently concerned to write a
 21 recommendation in the final investigation report,
 22 which draws attention to the need to re-evaluate
 23 the relief system on the ISOM unit.
 24 Q. There are regulations about how often you
 25 have to do a relief valve study, right?

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1 A. I am not aware of any regulations other
 2 than if there were a significant change, then an
 3 MOC, a management of change practice would require
 4 one to consider whether there was any hazards as a
 5 result of the change and that may or may not be
 6 relevant to, you know, updating a relief valve
 7 study.
 8 Q. So are you saying -- are you trying to
 9 tell this jury that it is good engineering
 10 practice, and that BP follows this practice that
 11 they don't have to do a complete relief valve study
 12 for 19 years?
 13 A. If the system was designed adequately,
 14 let's say as an example 19 years ago, and there
 15 were no significant changes in the intervening
 16 period and there was no new technology or
 17 understanding of technology or science that caused
 18 you to question the original design that was
 19 apparently performed adequately, then there would
 20 be. I am not aware of any regulation that requires
 21 any -- any new relief valve study to be conducted.
 22 MR. WILLIAMS: Objection,
 23 nonresponsive.
 24 Q. (BY MR. WILLIAMS) Did you find
 25 significant changes were made in the ISOM unit in

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1 the 19 years that had passed since the previous
 2 relief -- complete relief valve study?
 3 A. We certainly found a number of changes.
 4 Now, whether they were sufficient to effect the
 5 relief -- the capacity of the relief system, I am
 6 not -- I am not aware; but that's why we made the
 7 recommendation in our final report to -- for
 8 someone to evaluate that.
 9 Q. There was a safety culture problem at the
 10 ISOM unit leading up to the explosion and fire of
 11 March 23rd, correct?
 12 A. Every -- every site has a safety culture
 13 of some nature. On the ISOM unit on March the
 14 23rd, we found certain aspects of the safety
 15 culture that were -- from my perspective anyway,
 16 were not perhaps what they should have been.
 17 MR. DENNY: Are we about out of
 18 tape?
 19 MR. WILLIAMS: We have five
 20 minutes.
 21 MR. DENNY: Okay.
 22 THE VIDEOGRAPHER: Off the record
 23 at 10:57 a.m., ending Tape 1.
 24 (Recess taken.)
 25 THE VIDEOGRAPHER: On the record

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1 11:13 a.m., beginning Tape 2.
 2 Q. (BY MR. WILLIAMS) Where do you office,
 3 sir?
 4 A. My office is in the Westlake complex on
 5 the west side of Houston.
 6 Q. How far is it from your office to the
 7 Texas City refinery?
 8 A. It's about 65 miles, maybe 70 miles,
 9 something of that order.
 10 Q. And who is the top process safety expert,
 11 if there is one, at the Texas City refinery back on
 12 March 23rd?
 13 A. The process safety manager was Bill Ralph
 14 on March the 23rd.
 15 Q. What is your relationship with Bill
 16 Ralph? How often do y'all interact?
 17 A. I have known Bill for a few years since
 18 the BP Amoco merger. Over the last few years, we
 19 have maybe corresponded by e-mail in that I share
 20 some of the materials that I get through the Center
 21 for Chemical Process Safety with Bill and with his
 22 peers in the other refineries and upstream oil
 23 operations.
 24 Q. How often had you been to the Texas City
 25 refinery before this explosion? Setting aside your

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1 visit to the cogeneration which is not owned by BP,
 2 how often had you been there before the explosion?
 3 A. Possibly once, maybe twice.
 4 Q. In how many years?
 5 A. Since the -- since the merger with Amoco,
 6 so that would be, what, about six years.
 7 Q. And why did you go there once or twice in
 8 your career?
 9 A. I think that one of our process safety
 10 experts from London was running a training class on
 11 major accident risk, and I seem to remember going
 12 to Texas City to attend that class.
 13 Q. Who was that expert?
 14 A. A Mike Considine.
 15 Q. Who attended that class?
 16 A. There were representatives from most of
 17 the North American refineries plus one or two other
 18 plants; and when I say North American refineries, I
 19 mean, BP refineries.
 20 Q. Who was from the Texas City refinery?
 21 A. I believe Bill Ralph was there. I don't
 22 recall who else was there.
 23 Q. Were there any training materials,
 24 PowerPoints, et cetera, that were shown or
 25 distributed?

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1 A. I believe there was a PowerPoint
 2 presentation material was handed out as a hard
 3 copy.
 4 Q. How long did the presentation last?
 5 A. I think it may have been a day and a
 6 half, one and a half days, but from that --
 7 Q. What year was it?
 8 A. I don't recall exactly, but around about
 9 2002.
 10 Q. You said you had been there on two
 11 occasions, and what was the other occasion?
 12 A. I really don't recall.
 13 Q. Has Bill Ralph ever been to your office
 14 65 miles away to visit you?
 15 A. I don't believe so.
 16 Q. Other than distributing materials that
 17 you have picked up when you attend some of these
 18 conferences given by the chemical -- Center for
 19 Chemical Process Safety, how often would you and
 20 Bill Ralph communicate? Once a month? Once every
 21 six months? What is the right answer?
 22 A. I normally send out a bulletin from CCPS
 23 at least every month, once a month and in between
 24 those maybe two or three times a year.
 25 Q. Okay. So face-to-face contact with the

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1 head of process safety at Texas City refinery, you
 2 have maybe met him face-to-face on two occasions?
 3 A. At Texas City.
 4 Q. And how many occasions other than at the
 5 refinery?
 6 A. For a while I attended some biannual
 7 meetings which the refinery PSM folks organized.
 8 So Bill would have been at those meetings. So that
 9 was over maybe a couple of years, twice a year.
 10 And Bill and I actually got to work together on one
 11 occasion at a refinery in Europe.
 12 Q. To your knowledge -- well, have you ever
 13 gone and studied the PSM program at the Texas City
 14 refinery before the explosion?
 15 A. No.
 16 Q. I am trying to find out the structure
 17 of -- with regard to PSM within your company. You
 18 said you are the senior consultant. Are there
 19 other consultants at your level of senior
 20 consultant or are you the only one -- are you the
 21 person with the most senior title?
 22 A. I am the only one in exploration and
 23 production. There are some less experienced
 24 engineers in exploration and production that I work
 25 with.

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1 Q. Well, is the Texas City refinery part of
 2 exploration and production?
 3 A. No.
 4 Q. What's it a part of?
 5 A. The refining and marketing segment.
 6 Q. So who's -- is there a senior consultant
 7 for PSM in the division in which the Texas City
 8 refinery is -- finds itself?
 9 A. There is not an individual with -- well,
 10 to my knowledge, there is not an individual with
 11 that job title. There is an engineer who I believe
 12 coordinates activities in process safety between
 13 the refineries.
 14 Q. Who would that be?
 15 A. Mark Preston, I believe, but I don't work
 16 very closely with the refining and marketing
 17 segment.
 18 Q. So is it a fact then with respect to
 19 process safety, the Texas City refinery is in a
 20 different division than the division in which you
 21 work, true?
 22 A. That's correct.
 23 Q. And that since it's in a different
 24 division, you do not have direct supervisory
 25 control over the process safety management at Texas

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1 City refinery?
 2 A. That's correct.
 3 Q. Who does?
 4 A. At Texas City, I am not sure. I think
 5 that Mark Preston provides coordination, but I
 6 don't think he has any -- any line management role.
 7 Q. Well, what I am trying to find out is
 8 looking at the management structure of the process
 9 safety management people, is there anybody with any
 10 expertise in process safety above Bill Ralph within
 11 his division?
 12 A. I am not sure.
 13 Q. You have no knowledge of anybody with
 14 expertise in that area above Bill Ralph in that
 15 division, true?
 16 A. Other than Mark Preston that I referred
 17 to, that's correct.
 18 Q. And as far as Mark Preston goes, he
 19 simply coordinates some kind -- some -- somehow
 20 between PSM at different plants; but he is not Bill
 21 Ralph's boss or superior as far as you know,
 22 correct?
 23 A. As far as I know, I don't believe that he
 24 is Bill Ralph's boss.
 25 Q. Okay. Anybody at the executive level at

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1 BP North America that holds the title or has -- is
 2 in charge of PSM, process safety management?
 3 A. Not that I am aware of.
 4 Q. Are you aware of any training that has
 5 been given to any of the management people about
 6 process safety management in the division where
 7 Texas City refinery is, any manager above Bill
 8 Ralph been given any training on process safety
 9 management that you know of?
 10 A. Not that I know of, but I haven't
 11 investigated that.
 12 Q. I am just trying to see as a resource, we
 13 have Bill Ralph here in the plant, if he is trying
 14 to find a PSM resource or boss or somebody above
 15 him, can you think of anybody that's a boss or
 16 above him or has an executive title that he would
 17 go to with regard to process safety; or is he truly
 18 the top guy on process safety within that --
 19 A. I am really not that familiar with the
 20 refining and marketing segment.
 21 Q. Did your investigation reveal or look --
 22 investigate what's the structure, the management
 23 structure for process safety at that plant?
 24 A. No, we didn't investigate that. I just
 25 concentrated on establishing the facts and the

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1 causes of the incident on March the 23rd.
 2 Q. And was there anybody you found with any
 3 expertise in process safety below Bill Ralph?
 4 A. I am aware of a few individuals, yes.
 5 Q. Who?
 6 A. Bill Clary, who was on the investigation
 7 team. I think there was another guy by the name of
 8 Hilton Tolbert and then there are a number of
 9 people who have an awareness or understanding of
 10 some of the individual elements of process safety
 11 management.
 12 Q. Well, I have got an awareness of some of
 13 the elements of process safety management and by
 14 now the jury does, too. Does that make us experts
 15 in process safety management?
 16 A. Not necessarily.
 17 Q. So what I am focusing on is who -- who at
 18 the Texas City refinery did your investigation
 19 reveal had true expertise in process safety
 20 management and were responsible for process safety
 21 management? You mentioned Bill Ralph. Was there
 22 anyone else?
 23 A. Many of the operations personnel have a
 24 good understanding of operating procedures. That
 25 is one of the elements of process safety

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1 management.
 2 MR. WILLIAMS: Objection,
 3 nonresponsive.
 4 A. Many of the -- many of the maintenance
 5 personnel have a good understanding of the
 6 maintenance practices, inspection, testing of
 7 equipment and so forth. That is another element of
 8 process safety management, and I could go on for
 9 all the different elements of process safety
 10 management. There are individuals who know some of
 11 the elements quite well.
 12 MR. WILLIAMS: Objection,
 13 nonresponsive.
 14 Q. (BY MR. WILLIAMS) I am not asking you --
 15 you know there is a big difference between somebody
 16 that knows something about some element. I am
 17 asking you: Can you identify anybody who is an
 18 expert in process safety management at Texas City
 19 refinery other than Bill Ralph?
 20 A. I did not address that as part of the
 21 investigation on the incident on March the 23rd.
 22 Q. I understand you didn't investigate it,
 23 but do you have any knowledge of anybody that's an
 24 expert in process safety management at the Texas
 25 City refinery other than Bill Ralph?

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1 A. Bill Clary and Hilton Tolbert.
 2 Q. So you are telling us that Bill Clary and
 3 Hilton Tolbert are experts in process safety
 4 management?
 5 A. They have a good knowledge and
 6 understanding of the process safety management
 7 regulation.
 8 Q. So let's take Bill Clary first. Did Bill
 9 Clary have any training in process safety
 10 management in college?
 11 A. I don't know.
 12 Q. Did he have any training, formal training
 13 in process safety management that was in-house at
 14 BP?
 15 A. I don't know. I didn't investigate that.
 16 Q. Did he have any formal safety process
 17 safety management training by any outside entity
 18 while at BP?
 19 A. I don't know.
 20 Q. Well, do you know of any formal training
 21 that Bill Clary has had on process safety
 22 management?
 23 A. I have not investigated Bill Clary's
 24 training.
 25 Q. Do you know of any training that Hilton

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1 Tolbert has had on process safety management?
 2 A. I don't know.
 3 Q. Do you know of any training that Bill
 4 Ralph has had on process safety management?
 5 A. I have never investigated Bill Ralph's
 6 training.
 7 Q. So as far as you know sitting here today,
 8 you have no knowledge of training on process safety
 9 management that has been given to Bill Ralph, Bill
 10 Clary or Hilton Tolbert, true?
 11 MR. DENNY: Objection, form.
 12 A. No, that's not correct. I think I
 13 already told you that Bill Ralph attended the same
 14 training class that I attended at Texas City on
 15 major accident risk analysis.
 16 Q. (BY MR. WILLIAMS) And that was for a day
 17 and a half?
 18 A. I believe so.
 19 Q. Any other than the day and a half seminar
 20 that Bill Ralph attended with you, do you know of
 21 any process safety management training that Bill
 22 Ralph, Bill Clary, Hilton Tolbert received?
 23 A. I am not aware of any training they
 24 received, but having worked alongside of them, they
 25 have demonstrated a good knowledge and

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1 understanding of process safety management to me.
 2 MR. WILLIAMS: Objection to
 3 everything before the -- or "but" and after.
 4 Q. (BY MR. WILLIAMS) I am not asking you
 5 about your assessment. My question is: Are you
 6 aware of any formal training to any of these three
 7 men, Bill Ralph, Bill Clary or Hilton Tolbert other
 8 than the day and a half seminar that Bill Ralph
 9 attended years ago?
 10 A. I am not aware, and I have never
 11 investigated their training.
 12 Q. Is there a vice president of process
 13 safety management at BP North America?
 14 A. Not as far as I am aware, but I don't
 15 know all the vice presidents.
 16 Q. Is there a vice president for safety?
 17 A. In North America?
 18 Q. Yes, sir.
 19 A. I don't know.
 20 Q. Is there a vice president in London for
 21 safety?
 22 A. Yes.
 23 Q. How about for process safety?
 24 A. I don't believe so.
 25 Q. Who is the vice president in London for

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1 safety?
 2 A. I believe its Deb Grubbe.
 3 Q. What's the first name?
 4 A. Deb. I think it may be short for Debra.
 5 Q. Deb Grubbe. This is a woman?
 6 A. Yes.
 7 Q. Did she have any training in process
 8 safety?
 9 A. I don't know.
 10 Q. Have you ever heard her communicate to
 11 anybody of importance or prioritize the area of
 12 process safety?
 13 A. I have only ever met her once. She
 14 hasn't been -- she hasn't worked for BP for very
 15 long, and I have not heard her talk authoritatively
 16 about process safety.
 17 Q. Okay. So if we are looking for somebody
 18 in management that talks about their commitment to
 19 process safety and wants to make it a priority
 20 within the -- and part of the safety culture, is
 21 there anybody in the refining segment above Bill
 22 Ralph that you are aware of?
 23 A. I am not very familiar with the personnel
 24 in refining and marketing.
 25 Q. Did you give a speech on lessons learned

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1 from the BP Texas incident?
 2 A. I have given a few internal
 3 presentations.
 4 Q. Well, didn't you give a speech at one of
 5 the CCPS meetings about lessons learned from the
 6 BP --
 7 A. I was asked to give some comments. I
 8 wouldn't describe it as a speech. I had two or
 9 three minutes where I made some general
 10 observations around one or two lessons.
 11 Q. Did you have any notes or prepare any
 12 slides?
 13 A. No.
 14 Q. Internal speeches, you have given how
 15 many on the lessons learned from the BP Texas City
 16 explosion?
 17 A. Possibly four, I think.
 18 Q. And to whom and when?
 19 A. I spoke to the operations personnel in
 20 the Gulf of Mexico. That was, I think, last month.
 21 It was just a sort of lunchtime meeting, hour and a
 22 half thereabouts.
 23 I was asked to go and speak to the
 24 technology advisors in refining, which was last
 25 week, and that was -- that was maybe three hours,

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1 four hours. I gave a short presentation to some of
 2 my colleagues in integrity management in
 3 exploration and production. Oh, and we had an
 4 engineering authorities meeting in the U.K. that I
 5 spoke to them for about 30 minutes.
 6 Q. Did you prepare any notes, written
 7 speeches or slides, PowerPoints, et cetera, for any
 8 of these speeches?
 9 A. No, I -- what I used was the Chemical
 10 Safety Board's animation video and then maybe 10 or
 11 12 just photographs of the raffinate splitter,
 12 blowdown drum and some of the damage that occurred
 13 as a result of the incident on March 23rd.
 14 Q. The Chemical Safety Board's animation, it
 15 was appropriate to -- it was correct enough for you
 16 to use in explaining to people what happened that
 17 day?
 18 A. The animation has a number of factual
 19 errors within it, and so I normally try and explain
 20 some of those to the audience before I show it.
 21 Q. But with the knowledge that there may be
 22 some factual errors that you disagree with, is it
 23 something that is helpful to the audiences when you
 24 show it to understand what happened?
 25 A. It is helpful, yes.

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1 Q. Okay. And what are the factual errors
 2 that -- where you disagree with what is in the
 3 Chemical Safety Board's animation?
 4 A. I can't remember them all off the top of
 5 my head, but the -- the animation shows the
 6 redundant hard wired high level alarm at
 7 100 percent level where as in reality it was set at
 8 78 percent of the normal operating range.
 9 The animation talks about 50
 10 storage tanks being damaged. I am not sure where
 11 that number comes from because the damage was far,
 12 far less than that.
 13 Q. Is that in the animation or in the
 14 PowerPoint?
 15 A. It's in the animation.
 16 Q. Okay.
 17 A. The animation talks about the level
 18 transmitter and doesn't seem to appreciate that the
 19 level transmitter worked the way it was designed to
 20 work both before, during and after the incident.
 21 So the words used around the level transmitter are
 22 not entirely accurate.
 23 The -- I am trying to remember. I
 24 think the animation talks about pressure -- the
 25 pressure controller for the raffinate splitter

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1 not -- not functioning, whereas the pressure
 2 control on the raffinate splitter is the firing
 3 rate on the reboiler heater, and so it was a
 4 misconception around pressure control on the
 5 raffinate splitter. So a few things like that. I
 6 can't remember all of the errors, but there is a
 7 few.
 8 Q. Okay. But if you explain that there are
 9 a few errors like that, does it -- do you still
 10 find the animation to be helpful in conveying to a
 11 jury or an audience what happened that day, get
 12 across the basic facts and where flows are and what
 13 the towers and all look like?
 14 A. Yes.
 15 Q. Okay. How did you become an expert in
 16 PSM?
 17 A. I think that by spending quite a few
 18 years in process plant operations and then in the
 19 early Eighties I received some specific training
 20 which, I guess, I have built on over the years and
 21 developed. I have only -- you know, I have only
 22 been in the industry 37 years, but -- and I am
 23 still learning like everyone else, I guess.
 24 Q. Well, when did you receive the title
 25 "Senior Consultant Process Safety Management"?

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1 A. I think 2001.
 2 Q. And as far as you know in the refining
 3 division which the Texas City refinery is in of BP
 4 North America, there is no senior consultant for
 5 process safety management that you are aware of?
 6 A. There is no one with that specific job
 7 title as far as I am aware.
 8 Q. Is there anybody with those -- with your
 9 specific job duties in that division?
 10 A. Probably the closest individual is Mark
 11 Preston, who I referred to earlier.
 12 Q. And Mark Preston, as far as you know,
 13 coordinates in discussion amongst the various
 14 plants; but is not actually over any of the process
 15 safety people like Bill Ralph?
 16 A. I don't know Mark Preston's full roles
 17 and responsibilities, but I do not believe that he
 18 has a direct line management responsibility.
 19 Q. Okay. I want to talk to you a little bit
 20 about the report.
 21 How many drafts of the final
 22 report were done?
 23 A. In terms of sort of major drafts, there
 24 were something of the order of about 35. There
 25 were a number of sub drafts, if you will, where

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1 people gave me their comments on the previous draft
 2 and sent it back to me; and I kept all of those as
 3 well.
 4 Q. How were you designated to be the one, as
 5 you termed it, wrote 90 percent of the report?
 6 A. I guess I was at the wrong place at the
 7 wrong time. Someone had to do it. You can't have
 8 a -- it's very difficult for a committee to write a
 9 report. One individual has to do it and then the
 10 committee or the team, you know, sort of critique
 11 it and give comments and input.
 12 Q. Who was the head of the team? John
 13 Mogford?
 14 A. Yes.
 15 Q. Well, did he say to you, you are going to
 16 be the guy? Or how did it evolve --
 17 A. Yeah.
 18 Q. -- that you were going to be the drafter?
 19 A. He asked me to do it.
 20 Q. Did you keep minutes of your -- of the
 21 investigative team's meetings?
 22 A. I didn't, but one of the other team
 23 members kept -- did minutes of some of the the
 24 early meetings of the team.
 25 Q. Who was that?

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1 A. Greg Crum.
 2 Q. And to your knowledge, were any of the
 3 minute, notes, records of the team meetings
 4 deleted, destroyed, shredded?
 5 A. Not to my knowledge. I think they were
 6 turned into the database of documentation which the
 7 JIIC collected.
 8 Q. The who --
 9 A. The Joint Incident Investigation
 10 Committee or whatever it was referred to. JIIC.
 11 Q. Now, wait a minute. What was the title
 12 of your committee?
 13 A. I think that's what it was.
 14 Q. You are saying your committee that you
 15 were on was the JIIC?
 16 A. It started out where during the early
 17 evidence gathering phase we had a number of
 18 contractors representatives on the joint team and a
 19 database was managed by Greg Crum of all the
 20 evidence that was collected.
 21 Q. Who participate -- there's a -- there is
 22 not a list that I saw on the final report of the
 23 people who participated on the team. Is -- did I
 24 miss it?
 25 A. No, I think that the -- the employee --

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1 the Texas City refinery employees who were on the
 2 team requested that their names not be overtly, you
 3 know, published in the report. Intimidation might
 4 be too strong a word, but there had been some
 5 negative comments made to them from some of their
 6 colleagues. And so they did not wish their names
 7 to be publicized, although many people knew who
 8 they were.
 9 Q. Who were the people who were concerned of
 10 negative comments or intimidation by colleagues
 11 there at the plant?
 12 A. It was primarily the hourly paid members
 13 of the team, but there was a joint decision taken
 14 that none of the Texas City employee members of the
 15 team would -- you know, names would, you know,
 16 appear.
 17 Q. Okay.
 18 A. Having said that, they all agreed with
 19 the content of the final report.
 20 Q. Well, before -- let me ask you: Who were
 21 the ten members of the team?
 22 A. John Mogford and Tim Holt was the leader
 23 and deputy leader, myself and Greg Crum and we were
 24 the four, if you will, independent members of the
 25 team from outside of Texas City.

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1 The six refinery employees were
 2 Ollie Niederhofer, Bill Clary, Norman Woods, JoAnne
 3 Haven, Joe Dekelita and Richard Adams.
 4 Q. Between -- who was before Joe -- before
 5 Richard Adams? Joe who?
 6 A. Joe Dekelita. I think that's how he
 7 pronounces his name.
 8 Q. Okay. Who else contributed? Did you
 9 have -- you mentioned outside contractors?
 10 A. We had a number of outside contractors
 11 who were employed to conduct specific studies in
 12 their reports appended to the final report.
 13 Q. Let's list them, please.
 14 A. Packer Engineering, UOP, Baker Risk and a
 15 modeling company called PSE. We did have another
 16 process modeling company, but they failed to give
 17 us anything of value. So we changed horses in
 18 midstream and went to PSE.
 19 Q. Who was that company, if you recall?
 20 A. I think it was Aspen -- Aspen Tech, Aspen
 21 Technologies.
 22 Q. Packer Engineering, who were the people
 23 from there that participated?
 24 A. I can't remember all of their names.
 25 There was a John Myers, Chris -- I can't remember

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1 his surname. You know, I have all their business
 2 cards I would have to consult.
 3 Q. Okay.
 4 A. And there was a -- there was a professor
 5 that they brought in from South Carolina
 6 University, the University of South Carolina whose
 7 name is on the tip of my tongue.
 8 Q. How about -- and what was Packer
 9 Engineering's role?
 10 A. They were brought in before I arrived and
 11 it was pretty unclear why they had been brought in
 12 to assist the refinery. One of the first things I
 13 did was to try and establish a scope of work with
 14 them. They produced a sort of photographic model
 15 of the -- of the ISOM unit so we had a historical
 16 record of, you know, what everything looked like
 17 immediately after the -- the incident. They
 18 conducted some process engineering calculations on
 19 the flow through the relief valves and they also
 20 did a computation of fluid dynamics modeling of the
 21 vapor cloud dispersion.
 22 Q. UOP, what was their role?
 23 A. UOP was -- consulted as a process
 24 engineering organization that had knowledge of ISOM
 25 units and raffinate splitters and they were asked

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1 to comment on some of the issues surrounding the
 2 level transmitter and how that functioned and also
 3 on the information that was available to the board
 4 operator and others who were operating the unit on
 5 March the 23rd.
 6 Q. The people involved from UOP were who?
 7 A. Primarily a guy by the name of Brian
 8 Johnson. He brought in some younger engineers to
 9 help him, and I don't remember all their names.
 10 Q. Baker Risk, what was their role?
 11 A. Baker Risk were asked to look at the
 12 damage and try and work backwards in terms of
 13 modeling the sort of explosion dynamics and
 14 determine, you know, the circumstances relating to
 15 the explosion. They were also asked to monitor the
 16 equipment testing that took place on the -- the
 17 raffinate splitter and on the equipment that was
 18 removed from the raffinate splitter and sent for
 19 off site testing.
 20 Q. And who did you deal with from Baker
 21 Risk?
 22 A. Quentin Baker and Doug Olson primarily,
 23 but they also brought in a Mike Moosemiller and
 24 another engineer whose name escapes me. Sorry.
 25 They were also asked to -- early

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1 on to look at all the potential scenarios that
 2 could have led to the -- to the incident to -- to
 3 help us make sure that we considered every
 4 conceivable scenario and didn't miss anything.
 5 Q. PSE the modeling company, who did you
 6 deal with there?
 7 A. They are based in the United Kingdom, and
 8 so I had one of our senior process engineers in
 9 London sort of set up and manage that for me. His
 10 name was Stuart Fraser. The name of the individual
 11 is on the report. It's in the appendix to that. I
 12 think I only met him on one occasion when he came
 13 over to collect information.
 14 Q. How many times did your ten person
 15 committee meet during the course of your
 16 investigation?
 17 A. Well, for the first few months it was
 18 daily. Thereafter, we got together at various
 19 milestones; and as a team we must have met probably
 20 at least 50 days, maybe more.
 21 Q. Did you have anybody in their support
 22 staff, administrative, anybody outside these people
 23 that you have named?
 24 A. We had -- we had a couple of admin
 25 people, but they did not participate in the

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1 meetings. No one else comes to mind.
 2 Q. Did you have lawyers in there?
 3 A. No.
 4 Q. Did you have lawyers participate in the
 5 drafting of the report?
 6 A. No. I was the last one on the
 7 investigation team to arrive because I was out of
 8 the country on March the 23rd and I believe that
 9 before I arrived at Texas City, the attorneys had
 10 given the team some advice and guidance and then
 11 left the investigation team to their -- their own
 12 devices.
 13 When I arrived, which would have
 14 been around probably around about the 27th of
 15 March, gave or take a day, I had a five-minute, you
 16 know, personal briefing from an attorney; and then
 17 I have not had any contact really with the
 18 attorneys since I -- right up until the time that I
 19 issued the report.
 20 Q. Did -- were drafts of the report
 21 circulated to attorneys?
 22 A. One or two drafts towards the end, I
 23 believe, went to a limited circulation of
 24 management in London. I am not aware that the
 25 drafts went to attorneys. That -- I didn't -- you

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1 know, I didn't have control of that.
 2 Q. And did you get feedback from management
 3 in London about the drafts?
 4 A. I did receive one or two e-mails
 5 suggesting changes to the report; and I chose to
 6 ignore the majority of the comments I received --
 7 Q. Who --
 8 A. -- with the support, I would add, of John
 9 Mogford.
 10 Q. And who were the e-mails from?
 11 A. I think I had an e-mail from CJ Warner
 12 and Deb Grubbe.
 13 Q. Any others?
 14 A. I obviously had e-mails from within the
 15 investigation team, but I think those were the only
 16 two from outside.
 17 Q. And what was it that -- let's start with
 18 CJ Werner that he wanted you to change?
 19 A. Quite honestly I can't remember what the
 20 details were now; but whatever it was, I didn't
 21 agree with and so I left the report the way it was.
 22 Q. What about e-mails from Deb Grubbe asking
 23 you to make changes in the report? What was the
 24 subject of those?
 25 A. I -- I really can't remember the details

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1 now. This was a few months ago.
 2 Q. Did you make any changes as a result of
 3 these e-mails?
 4 A. I think I may have -- have added some
 5 things that were not -- which might have been --
 6 pretty minor changes, if there were.
 7 Q. What were they?
 8 A. I don't recall.
 9 Q. What's CJ Werner's title?
 10 A. I am not sure of the actual title --
 11 correct title but it's something to do with vice
 12 president of integrity, something like that.
 13 Q. And Deb Grubbe is vice president of
 14 safety?
 15 A. Yes.
 16 Q. When you say "vice president of
 17 integrity," what does that mean?
 18 A. What I think it means, and I haven't seen
 19 CJ's, you know, job description; but what I think
 20 of is sort of the mechanical, you know, mechanical
 21 integrity, integrity of the plant and equipment,
 22 things like that.
 23 Q. How does BP North America fit into the BP
 24 corporate umbrella?
 25 A. I don't know exactly. I could guess, but

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1 I don't know.
 2 Q. Well, is there any distinction from
 3 you -- you are an employee of BP North America,
 4 correct?
 5 A. I work for BP America, Inc.
 6 Q. Okay. Is there a different entity BP
 7 North America?
 8 A. I don't know. I don't know all the
 9 different, you know, company names.
 10 Q. Well, you've -- if you get an e-mail or a
 11 direction or communication from somebody with B --
 12 just BP from the London office, from your
 13 perspective, is that somebody that you've got to
 14 listen to?
 15 A. No more so than anyone else.
 16 Q. What I am trying to think of is
 17 Ross Pillari, as I understand it, is the president
 18 of BP America?
 19 A. I am not sure of his exact title. He is
 20 president of BP's entity in the U.S --
 21 Q. Okay.
 22 A. -- as far as I am aware, but --
 23 Q. But you've got to take orders from him,
 24 right, if he tells you to do something?
 25 A. I am not sure. I think that if I didn't

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1 agree with what he was telling me to do then I
 2 might not do it. I probably wouldn't do it.
 3 Q. You might get fired, too?
 4 A. Yeah, I might.
 5 Q. But my --
 6 A. But I'll have a clean conscious.
 7 Q. But the point I am trying to make is that
 8 from your perspective there is a boss that's head
 9 of the -- or head of the Americas BP entity that
 10 would be Ross Pillari. Then there is a guy who is
 11 head of the whole thing, Lord Browne over in
 12 London. From your perspective is it that you have
 13 to answer, I guess, to both entities, don't you?
 14 MR. DENNY: Objection, form.
 15 A. I have my line management in Houston that
 16 I report to, but I do what I think is correct in
 17 the way I conduct my business.
 18 Q. (BY MR. WILLIAMS) Do you -- so you don't
 19 have any experience with -- with dealing with -- do
 20 you understand what I am trying to do, is I am
 21 trying to figure out, do you have to listen to both
 22 the London people and the North American people
 23 or -- I don't understand your corporate structure,
 24 and I am trying to get a little guidance.
 25 MR. DENNY: Objection, form.

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1 A. I am a small cog in a big wheel, and I --
 2 you know, I don't really move in those sort of
 3 rarefied heights.
 4 Q. (BY MR. WILLIAMS) Have you given -- been
 5 asked to come back to the Texas City refinery and
 6 give any speeches or lectures or educational
 7 programs about what happened on March 23 of '05?
 8 A. I have not been asked to give a speech
 9 about what happened on March the 23rd.
 10 Q. Do you have a personal knowledge of any
 11 efforts by the people running the Texas City plant
 12 to educate the people in the plant about lessons
 13 learned from March 23?
 14 A. I understood that Colin Maclean was going
 15 to ensure that that was taken care of, but that's
 16 the only knowledge I have.
 17 Q. You have no personal knowledge then of
 18 anything actually being done to educate people in
 19 the Texas City refinery --
 20 A. I --
 21 Q. -- about lessons learned from March 23?
 22 A. I know that there is an organization
 23 within the refinery called the Program Office that
 24 is addressing the recommendations that came out of
 25 the final report and associated sort of activities.

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1 That's -- that's the only thing that I am aware of.
 2 Q. And who runs this program office?
 3 A. I can't remember the name of the
 4 individual, but it's one of the -- I believe the
 5 leadership team of the refinery.
 6 Q. And how do you know they are doing
 7 anything?
 8 A. I -- I attended one of their meetings a
 9 few months ago where we were talking about the
 10 recommendations in the final investigation report.
 11 Q. Which recommendation?
 12 A. All of the recommendations in Section 7
 13 of the final report.
 14 Q. Well, here's my question: Since
 15 March 23, the fire and explosion, has anybody
 16 requested you to come out and give lectures on
 17 process safety management and bring people up to
 18 speed on training in process safety management?
 19 A. I have had a number of requests which I
 20 think we covered earlier but nothing at Texas City.
 21 I have been very busy, as you might imagine,
 22 writing the report up until it was issued in
 23 December.
 24 MR. WILLIAMS: Objection,
 25 nonresponsive.

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1 Q. (BY MR. WILLIAMS) What I am -- have you
 2 or anybody else that works with you on process
 3 safety management been requested by the Texas City
 4 refinery leadership to come and address additional
 5 training or lessons learned from the March 23 fire
 6 and explosion?
 7 A. The only thing that I have been asked to
 8 do is to participate in a peer review of the
 9 refinery's efforts to recommission to ensure that
 10 any of the lessons from the March 23rd incident are
 11 reflected in the startup plans and practices which
 12 the refinery is undertaking.
 13 MR. WILLIAMS: Okay. Objection,
 14 nonresponsive.
 15 Q. (BY MR. WILLIAMS) My -- we will get to
 16 the peer review in a minute.
 17 But specifically, has anybody at
 18 Texas City refinery asked you to come lecture,
 19 teach, train on lessons learned from the March 23
 20 fire and explosion?
 21 A. No.
 22 Q. Now, on the peer review of refinery
 23 efforts, did that -- what is that? Explain that to
 24 me.
 25 A. There is a peer review team that has been

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1 assembled, and this is an activity that has taken
 2 place in the last month, to review the refinery's
 3 plans for recommissioning the process plant and
 4 equipment at the refinery; and I was asked to
 5 participate in that to ensure that the lessons from
 6 the Texas City incident on March the 23rd were
 7 being learned and reflected in those plans.
 8 Q. Is the ISOM unit going to be put back
 9 into operation?
 10 A. I am not sure whether a decision has been
 11 taken on that.
 12 Q. How many opportunities did BP's
 13 management have to eliminate the F-20 blowdown drum
 14 and stack and tie directly into the, what you have
 15 termed, an inherently safer option of tying in to
 16 the flare?
 17 A. I think there were opportunities in the
 18 late Nineties, early 2000s when flare lines were
 19 located relatively nearby for the purposes of the
 20 NDU unit and the AU2 units.
 21 Q. But my question is: How many
 22 opportunities were there for management to have
 23 eliminated the blowdown drum system and replaced it
 24 with an inherently safer design which would have
 25 been the tie-in to the flare system?

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1 A. I am aware of those two opportunities.
 2 Q. Certainly there could have been more
 3 opportunities?
 4 A. There may have been.
 5 Q. Do you know was there any barrier to
 6 taking advantage of those opportunities, any
 7 technical barrier or environmental barrier or
 8 regulation barrier that would have prevented BP
 9 from taking advantage of those two opportunities?
 10 A. Certainly the absence of a recent relief
 11 system study might be one barrier. Any -- any new
 12 flare system would require environmental permits,
 13 which would be another potential barrier. Those
 14 are the only two I can think of off the top of my
 15 head, but there may be others.
 16 Q. Isn't it true that those aren't really
 17 barriers. Those are just things that had to be
 18 addressed, and those things could have been
 19 achieved? Technologically, it was feasible. There
 20 was no real hurdle other than the will to do it,
 21 true?
 22 MR. DENNY: Objection, form.
 23 A. There were certain things to be
 24 addressed, but the environmental permitting is not
 25 something that is in BP's control.

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1 Q. (BY MR. WILLIAMS) Come on. Let's be
 2 honest. To tie into a flare system from the
 3 standpoint of the environment, it was better to tie
 4 into the flare system than have a vent stack that
 5 goes directly into the air, correct?
 6 A. I am not an environmental expert.
 7 Q. Oh, come on. But that's common sense,
 8 isn't it?
 9 A. I am not an environmental expert. You
 10 would have to ask an environmental expert.
 11 Q. Well, assume with me that -- that it does
 12 make sense, environmentally, to tie into a flare
 13 system, a closed flare system, instead of having it
 14 vent into the air, were there any real hurdles
 15 other than a will to do this?
 16 MR. DENNY: Objection, form.
 17 A. The only hurdles are the two examples
 18 that I think I have stated.
 19 Q. (BY MR. WILLIAMS) Well --
 20 A. That I can think of. There may be
 21 others.
 22 Q. The two hurdles that you mentioned were
 23 lack of a recent relief system study and that was
 24 simply because of the fact that BP hadn't done it.
 25 There was no hurdle to doing it. It was

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1 technically feasible. All they had to do was get
 2 off their rear ends and do it, right?
 3 MR. DENNY: Objection, form.
 4 A. I do not know the reasons why it wasn't
 5 done.
 6 (Brief interruption.)
 7 (Discussion off the record.)
 8 THE VIDEOGRAPHER: On the record,
 9 12:19 p.m., starting Tape 3.
 10 Q. (BY MR. WILLIAMS) You identified one of
 11 the hurdles that you believe existed was that there
 12 was no recent relief system study in that -- my
 13 question to you is, do you know of any reason or
 14 explanation as to why there was no recent relief
 15 system study?
 16 A. I don't know the reasons why there wasn't
 17 one.
 18 Q. It was technically feasible to do a
 19 relief system study, right?
 20 A. I would expect it to be --
 21 Q. It's something --
 22 A. -- feasible.
 23 Q. Okay. Other than management paying
 24 attention to it, was there any reason -- other than
 25 management's lack of attention, are you aware of

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1 anything that would be an excuse for not having a
 2 recent relief system study?
 3 A. I do not know the reasons why there
 4 wasn't one.
 5 MR. WILLIAMS: Okay. Let's break
 6 for lunch.
 7 THE VIDEOGRAPHER: Off the record
 8 at 12:20 p.m.
 9 (Recess taken.)
 10
 11 THE VIDEOGRAPHER: On the record,
 12 1:31 p.m.
 13 Q. (BY MR. WILLIAMS) Mr. Broadribb, do you
 14 agree that the success of a process safety
 15 management system is dependent on leadership?
 16 A. That is one consideration for the success
 17 of a process safety management program.
 18 Q. Do you agree that the interest in process
 19 safety must penetrate to the highest levels of
 20 management?
 21 A. I am sorry. Could you say that again for
 22 me, please?
 23 Q. That the interest in process safety
 24 management must penetrate to the highest levels of
 25 management?

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1 A. Certainly management needs to consider
 2 safety in all of its activities.
 3 Q. Do you agree that safety and loss
 4 prevention in an organization stand or fall by the
 5 attitude of senior management?
 6 A. That is one consideration.
 7 Q. And that the creation in maintenance of a
 8 safety culture requires strong leadership by senior
 9 management?
 10 A. Management can certainly in -- yeah, have
 11 a strong influence on the culture within a --
 12 Q. And the --
 13 A. -- in a facility.
 14 Q. In your organization, the CCHS, it states
 15 that, "Not surprisingly management commitment
 16 emerges as the dominant factor influencing safety
 17 performance."
 18 We have gone over that before,
 19 right?
 20 A. That was the view of, I guess, the author
 21 of that publication.
 22 Q. Well, do you disagree with it, sir?
 23 A. I think I said earlier that it was an
 24 important consideration.
 25 Q. And so what's more important than

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1 management having a commitment to influencing
 2 safety?
 3 A. I would have to think about that question
 4 for some time.
 5 Q. Well --
 6 A. But it is one of, you know, of many
 7 considerations.
 8 Q. You -- okay. Well, what are the
 9 considerations that are more important than
 10 management's commitment to safety? List any of
 11 them.
 12 A. I think that there would be a number of
 13 considerations that may be equally valid.
 14 Q. Well, I am just -- I am asking you
 15 what -- what's more important than a commitment by
 16 management? You keep telling me -- answer the
 17 question, what?
 18 A. Well, I think that management commitment
 19 is one consideration for the safe operation of a
 20 facility. I think, clearly, the motivation of the
 21 workforce to want to perform things safely is
 22 another consideration. And given time, I could
 23 probably think of some others.
 24 Q. All right. Let's take "motivation of the
 25 workforce." Who is responsible for motivation of

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1 the workforce? Is it management perhaps?
 2 A. Again, that is probably one of their
 3 roles.
 4 Q. So it all comes back to management,
 5 doesn't it?
 6 A. Management have an important part to
 7 play, yes.
 8 Q. And, sir, let's look at your report,
 9 Exhibit 21. I believe it's in front of you in that
 10 notebook.
 11 MR. DENNY: Which number?
 12 MR. WILLIAMS: 21.
 13 THE WITNESS: 21.
 14 A. Okay.
 15 Q. (BY MR. WILLIAMS) Okay. Go to the
 16 second page of your report. It has the two little
 17 items. The first bullet point there says that,
 18 "The environment -- the working environment had
 19 eroded to one characterized by resistance to change
 20 and lacking of trust, motivation and a sense of
 21 purpose." If you go on and skip down to the next
 22 sentence it says, "Rules were not consistently
 23 followed."
 24 And my question to you, sir, is:
 25 Who's responsible for that eroding work environment

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1 where people didn't trust one another and there was
 2 lack of motivation and rules were not consistently
 3 followed?
 4 A. Well, I think the -- certainly the
 5 leadership of the site were accountable for safe
 6 and efficient operation of the facility. That --
 7 that accountability is obviously delegated to, you
 8 know, supervision in the workforce. So I think
 9 they all play a part.
 10 Q. Well, I am sorry. It's hard for me to
 11 question -- how many people are there at that
 12 plant?
 13 A. I am not sure of the precise number. I
 14 have only looked at the isomerization unit.
 15 Q. Well, is it 1200 or 1800 people? Do you
 16 know?
 17 A. I don't know.
 18 Q. Well, here's the deal. Sometimes in a
 19 corporation it's hard for me to figure out who's
 20 accountable. So you found as a finding of fact
 21 that the work environment was resistant to change,
 22 lacking of trust and motivation, rules were not
 23 consistently followed. So I need the name of the
 24 person that's responsible for that.
 25 A. My job was not to determine who was

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1 responsible or who was to blame. My job was to
 2 determine the facts as they applied to the events
 3 that led up to the incident on March the 23rd to
 4 determine the root causes and to make
 5 recommendations to prevent a recurrence.
 6 Q. Well, okay. To prevent a recurrence, you
 7 might have to know who is responsible so they can
 8 get either remedial training or get fired, right?
 9 A. That would not be the role of an
 10 investigation team.
 11 Q. Well, who was it then that followed up
 12 after you investigated and found that there was
 13 lacking of trust or -- and motivation and that
 14 rules were not consistently followed, who was it
 15 that followed up and said, "Okay, let's find out
 16 who it was and let's either retrain them or fire
 17 them"?
 18 A. I would assume that that was someone on
 19 the Texas City site.
 20 Q. Well, I have not been able to find that
 21 person. Do you have any knowledge of anybody being
 22 retrained or fired as a result of this finding?
 23 A. I am aware of some of the things that I
 24 read in the newspaper of disciplinary action that
 25 was taken; but as a member of the investigation

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1 team, I was not involved in -- in the -- you know,
 2 what would be a -- I am a presuming a line
 3 management responsibility within the site.
 4 Q. Well, did anybody in upper management
 5 ever come to you or the members of your committee
 6 and say, "Well, wow, we just found out that there
 7 is resistance to change and lacking of trust and
 8 motivation, that rules were not consistently
 9 followed; so we want to change it. Give me the
 10 person that I need to go to"?
 11 Did they ever make that inquiry of
 12 you?
 13 A. No.
 14 Q. The second bullet point you say, "Process
 15 safety: Priorities had not been set and
 16 consistently reinforced by management."
 17 Who in management had failed to
 18 set those priorities and reinforce those principles
 19 of safety?
 20 A. Again, you know, I only investigated the
 21 ISOM unit and the circumstances that led to the
 22 incident on March the 23rd; and I determined that
 23 there was little in the way of any priorities for
 24 process safety or risk reduction.
 25 Q. Right. And I agree that there was

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1 little, and those were big flaws; but who was it
 2 that was responsible for those big flaws?
 3 A. That was not the role of the
 4 investigation team to determine or to place blame
 5 on any individual.
 6 Q. Well, how do you fix it if you don't know
 7 who the people were that were involved that --
 8 A. It's not my job to fix it. It's my job
 9 to make recommendations to prevent a recurrence.
 10 Q. Well, who --
 11 A. And those recommendations were to address
 12 the root causes of -- you know, that led to the
 13 incident on March the 23rd.
 14 Q. So you investigated this thing, and you
 15 can't give me a single name of the people that were
 16 responsible for the fact that process safety was
 17 not a priority at this plant?
 18 A. I can speculate; but I did not, you know,
 19 conduct any investigation to determine blame.
 20 Q. Okay. What's your speculation?
 21 MR. DENNY: Objection, form.
 22 A. You know, from my personal perspective, I
 23 would expect the line management organization to
 24 have some responsibility.
 25 Q. (BY MR. WILLIAMS) I need a name. Line

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1 management is corporate speak. I need a name,
 2 please.
 3 MR. DENNY: Objection, form.
 4 A. That would be the refinery leadership and
 5 the line management down through the -- you know,
 6 to supervision.
 7 Q. (BY MR. WILLIAMS) I need a name. I am
 8 looking for a name.
 9 A. Unfortunately, I cannot give you a name
 10 that I know personally was to blame for anything --
 11 of the circumstances that led to this incident.
 12 Q. Well, wait a minute. You conducted the
 13 sole, the only investigation by BP into this
 14 incident, correct?
 15 A. I don't know that to be true.
 16 Q. Well, you --
 17 A. I conducted one investigation.
 18 Q. Okay. Were you given terms of reference
 19 as to what your job was?
 20 A. I was.
 21 Q. And --
 22 A. And those were appended, I believe --
 23 Q. I am --
 24 A. -- to the report.
 25 MR. WILLIAMS: Mark this as the

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1 next exhibit, please.
 2 (Exhibit Number 133 marked for
 3 identification.)
 4 Q. (BY MR. WILLIAMS) Exhibit 133, is that
 5 the direction that you were given that -- and it's
 6 called a "terms of reference" as to what you were
 7 supposed to do?
 8 A. This looks to be the document that I was
 9 given.
 10 Q. Right. And look at the bullet point I
 11 highlight there. Does it say that there are going
 12 to be multiple investigations of this incident or
 13 what does it say?
 14 A. This says, "The investigation team will
 15 conduct the sole BP investigation into the
 16 incident."
 17 Q. That means the one and only is that -- am
 18 I interpreting "sole" correctly?
 19 A. That would be my interpretation.
 20 Q. So why doesn't -- when you find that
 21 there is a lack of trust, process safety is not a
 22 priority, how come the one and only investigation
 23 doesn't go further and say, "Who in the heck is
 24 responsible?" How come you --
 25 A. Because that has never been the

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1 requirement of any BP investigation.
 2 Q. Why?
 3 A. Because we try to distance any
 4 disciplinary action from the investigation.
 5 Discipline is the line management responsibility.
 6 It is nothing to do with the investigation team.
 7 Q. Okay.
 8 A. I don't actually see any reference here
 9 to placing blame or discipline in these terms of
 10 reference that you just handed to me.
 11 Q. Well, that's amazing to me. It seems to
 12 me that you would want to find who was the problem,
 13 whether you discipline them, give them a gold star
 14 or give them the boot out of the plant, it seems
 15 like you would want to identify the name of the
 16 person.
 17 Can you identify for us anybody
 18 that your investigation found was responsible for
 19 this lack of trust and the lack of priority of
 20 process safety?
 21 MR. DENNY: Objection, form.
 22 Q. (BY MR. WILLIAMS) Can you give us a
 23 name?
 24 A. I think I just told you in my previous
 25 answer that I was not required to identify any

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1 persons of blame. I was asked to identify the
 2 facts that led up to the incident, the root causes
 3 for the incident, and to make recommendations to
 4 prevent a recurrence.
 5 Q. Well, wait a minute. Is this a complex
 6 organization at BP plant, Texas City refinery?
 7 A. I would have to say that compared to many
 8 plants that I have been to, yes it is complex.
 9 Q. In fact --
 10 A. It is a very large refinery.
 11 Q. In fact, in the very next bullet point
 12 you say, "Many changes in a complex organization
 13 led to the lack of clear accountability," and then
 14 it goes on to say, "Which resulted in confusion
 15 over responsibilities."
 16 That was your factual finding,
 17 lack of accountability and confusion over
 18 responsibilities, true?
 19 A. That's correct.
 20 Q. Who is responsible for the fact that
 21 there was lack of accountability and confusion over
 22 responsibilities?
 23 A. Well, almost by definition it means there
 24 was no one clearly accountable or had clear roles
 25 and responsibilities.

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1 Q. Well, it seems to me -- who is -- who was
 2 responsible for seeing that it should have been
 3 clear and there should have been no confusion over
 4 responsibilities? Who's responsible, sir?
 5 A. I think I already told you that I was not
 6 required to conduct an investigation to determine
 7 blame.
 8 Q. Well, this is --
 9 A. I was asked to conduct an investigation
 10 to determine the facts of what led up to the
 11 incident, the root causes for the incident and to
 12 make recommendations to prevent a recurrence and
 13 that I believe is what I have done and is
 14 demonstrated in the final report.
 15 Q. So if we are trying to find out a name of
 16 somebody that's responsible for this lack of clear
 17 accountability and confusion over responsibilities,
 18 did your investigation reveal the name or title of
 19 any of these people?
 20 A. No.
 21 Q. It says in the next bullet point, "There
 22 was a poor level of hazard awareness and
 23 understanding of process safety," and it goes on to
 24 say that "people accepted levels of risk that are
 25 considerably higher than comparable installations."

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1 That was your finding of fact,
 2 correct?
 3 A. That's correct.
 4 Q. Who is responsible for that fact that
 5 they were accepting high levels of risk?
 6 A. I think I have just previously told you
 7 that I was not required to conduct an investigation
 8 to determine blame.
 9 MR. DEAN: Objection
 10 responsiveness.
 11 Q. (BY MR. WILLIAMS) Well, then if I
 12 wanted -- if we want to correct it, who do I go to
 13 to correct it?
 14 A. I think you will have to talk to others
 15 who were responsible for the operation of the site.
 16 Q. Who? Do you mean the people that -- that
 17 helped create the lack of accountability and
 18 confusion in the third bullet point? Those are the
 19 people I should go talk to?
 20 A. I could speculate; but that would be my
 21 personal views, not necessarily the correct ones.
 22 Q. Well, you found there was lack of
 23 accountability and confusion, and then you say that
 24 they accepted unreasonably high levels of risk and
 25 I am just asking you who is "they" that accepted

<p style="text-align: right;">Page 98</p> <p>1 these high levels of risk? 2 A. The only people that I have interviewed 3 or analyzed as part of this investigation were 4 those involved in the operation of the ISOM unit on 5 March 23rd. 6 Q. Well, who? Who is it that you're saying 7 accepted a high level of risk? 8 A. I would have to say the line management 9 organization for the ISOM and the workforce of the 10 ISOM. 11 Q. Give me a name. 12 A. Everyone who works on the ISOM unit in 13 any shape or form. 14 Q. How about the people above the ISOM unit? 15 How about plant management? Did they have a role 16 in this lack of clear accountability and the 17 confusion over responsibilities? 18 A. They may have, but I've only investigated 19 the incident on March the 23rd on the ISOM unit. 20 Q. Well, who investigated management? 21 A. I don't know. 22 Q. Well, wait a minute. If safety is -- if 23 management, if their commitment to safety is 24 important, why wouldn't we, kind of, check into 25 them and look in and see if management had a</p>	<p style="text-align: right;">Page 100</p> <p>1 Q. Who? 2 A. I am guessing the leadership team of the 3 refinery. 4 Q. They investigated themselves? 5 A. I don't know the details, I am afraid; 6 but I believe there was another investigation 7 conducted. 8 Q. Well, tell me the name of this 9 investigation. 10 A. I don't know what name it is. 11 Q. Is there a written report? 12 A. I don't know. 13 Q. Who was involved? 14 A. I don't know. 15 Q. When was it done? 16 A. I have got to believe it was in parallel 17 with my own investigation, but I was too busy 18 conducting my investigation to -- to get involved 19 in other things. 20 Q. So there is a parallel investigation 21 being done while you were doing your investigation? 22 A. I can -- I believe there was an 23 investigation done that may have led to some of the 24 disciplinary action, but I was not involved in 25 that.</p>
<p style="text-align: right;">Page 99</p> <p>1 failure here? 2 A. And I did look at the line management 3 organization for the ISOM unit. 4 Q. I am not asking about line management. I 5 am talking about above that, plant management and 6 even above that, the management all the way up to 7 Chicago and all the way across over to London. Did 8 anybody look into their flaws? 9 A. I was asked to investigate the 10 circumstances that occurred on the ISOM unit on 11 March the 23rd and that is what I did. 12 MR. WILLIAMS: Objection, 13 nonresponsive. 14 Q. (BY MR. WILLIAMS) Did anybody look into 15 the flaws of management above line management, 16 including the upper management at the refinery, the 17 management in Chicago and the management in London? 18 Did anybody study that, sir? 19 A. I wouldn't know. 20 Q. Well, it says in your charge that this is 21 the sole investigation. Are you aware of any 22 additional investigations? 23 A. I believe that the -- the line management 24 organization within the refinery may have conducted 25 their own investigation.</p>	<p style="text-align: right;">Page 101</p> <p>1 Q. Well, that was a parallel investigation 2 you are speaking -- is that the parallel 3 investigation that you speak of? 4 A. I believe so, yes. 5 Q. How do you know that happened? 6 A. I heard -- hearsay. 7 Q. From whom and what? 8 A. That those involved in the operation of 9 the ISOM unit were being interviewed and 10 investigated and that may have led to disciplinary 11 action. 12 Q. Who told you that? 13 A. I don't recall. 14 Q. What about an investigation of 15 management's role? Was there any hearsay or any 16 information you have that anybody ever looked into 17 management's role in what happened that day? 18 A. As I said, the investigation that I was 19 involved in we looked at the line management of the 20 ISOM unit. I am not aware of any other 21 investigation. 22 Q. Let's look at this issue of accepting a 23 high risk. You wrote about that in your report on 24 page 140, right? 25 A. I found it.</p>

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1 Q. In fact, look at the last sentence right
 2 above 5.19.2, read the sentence right above that,
 3 please.
 4 A. "Site management did not appear to be
 5 focused on understanding and reducing the highest
 6 risks."
 7 Q. Who in site management did not appear to
 8 be focused on understanding these risks, the
 9 highest risks?
 10 A. That would be the line management
 11 organization for the ISOM unit.
 12 Q. Give me a name because you keep giving me
 13 some answer that I don't understand. Give me a
 14 name.
 15 MR. DENNY: Objection, form.
 16 A. Line management would be a number of
 17 individuals involved in the operation and
 18 maintenance of the -- the ISOM unit.
 19 Q. (BY MR. WILLIAMS) Give me a name.
 20 A. Through all the various layers of the
 21 organization from the leadership team down to the
 22 superintendents, supervisors and the workforce.
 23 Q. Well, this seems like a pretty strong
 24 statement that "Site management did not appear to
 25 be focused on understanding and reducing the

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1 highest risk."
 2 So who specifically, give me
 3 names, fit that finding that they did -- that they
 4 weren't focus on reducing the highest of risk?
 5 A. You also need to put this statement into
 6 context with the rest of the report.
 7 MR. WILLIAMS: Objection,
 8 nonresponsive.
 9 A. Where it refers to that --
 10 Q. (BY MR. WILLIAMS) I am asking you for
 11 names.
 12 A. I think I have already explained to you
 13 that this was a general statement around the line
 14 management organization for the ISOM unit. This
 15 particular reference was to the fact, I think, that
 16 the line management organization appeared to be
 17 more focused upon the occupational safety and
 18 environmental performance risks as opposed to the
 19 process safety risks.
 20 MR. WILLIAMS: Objection,
 21 nonresponsive.
 22 Q. (BY MR. WILLIAMS) Let's make it -- let's
 23 see if we can agree on something.
 24 There is no question that the
 25 people at the plant seem to have a focus more on

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1 occupational safety such as wearing your
 2 eyeglasses, hard hat or steel toed boots or the
 3 proper clothing. They were more focused on that
 4 than they were on process safety, true?
 5 A. Your characterization of process safety
 6 is somewhat incomplete; but in general sense, yes.
 7 Q. So you go on to say on page 140 that
 8 "Site management did not appear to be focused on
 9 understanding and reducing the highest risk."
 10 You conducted what appears to be
 11 the sole invest -- or was claimed to be the sole
 12 investigation. You wrote the report, and I want
 13 some names to go along with who it was that failed
 14 to understand and reduce these highest risks. Who?
 15 A name?
 16 A. I think I already explained to you that I
 17 was not asked to conduct an investigation to place
 18 blame. I was asked to conduct an investigation to
 19 determine the facts, to determine the root causes
 20 that led to the incident and to make
 21 recommendations to prevent a recurrence and that's
 22 what I did.
 23 Q. Your -- was your investigation thorough
 24 enough to identify the people that are responsible
 25 for failing to understand and reduce the highest

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1 risk?
 2 A. I believe my investigation was one of the
 3 most thorough ever conducted into a process plant
 4 operation by a company such as BP, and I am
 5 satisfied that it was a thorough investigation.
 6 However I was not asked to conduct an investigation
 7 to place blame.
 8 Q. I am not asking you to place blame. I am
 9 asking you to identify the names of the people that
 10 you state here failed to focus on and understand
 11 and reduce the highest risk?
 12 A. That was not the nature of the
 13 investigation that I conducted.
 14 Q. So your investigation failed to come up
 15 with names of anybody that's responsible for that?
 16 A. There are -- I don't believe there are
 17 any names used within our investigation report.
 18 Q. Okay.
 19 MR. DEAN: Objection,
 20 responsiveness.
 21 Q. (BY MR. WILLIAMS) Ross -- Ross Pillari,
 22 is he responsible for failing to understand and
 23 reduce the highest risk?
 24 A. I do not know what Ross Pillari's
 25 management accountabilities and roles and

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1 responsibilities are.
 2 Q. Because you didn't really study what you
 3 have termed as a complex management system that
 4 they have there, true?
 5 A. I have conducted an investigation in
 6 sufficient depth to have total confidence that I
 7 have identified the relevant facts and to determine
 8 the root causes such that I can make
 9 recommendations that if they are followed through
 10 will prevent a recurrence.
 11 Q. Well, sometimes you have to change people
 12 to change cultures, don't you?
 13 A. I have heard that saying.
 14 Q. And in fact, there was a safety culture
 15 problem at the Texas City refinery, true?
 16 A. Yes, our investigation report describes
 17 certain characteristics of the safety culture that
 18 were not perhaps what they should have been.
 19 Q. So who should we replace to change this
 20 culture?
 21 A. I wouldn't know.
 22 Q. On that same page, page 140 of your
 23 report, it says that "Management appeared to
 24 tolerate a high level of risk," correct?
 25 A. I am sorry. I am trying to find that.

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1 Q. Right under 5.19.2.
 2 A. It says, "Management and the workforce
 3 appeared to tolerate a high level of risk."
 4 Q. Right, and it says, "The investigative
 5 team observed many examples of high level of risk
 6 being accepted within the site," correct?
 7 A. That's correct.
 8 Q. And so -- and you go on -- well, who is
 9 responsible for management having -- and the
 10 workforce having tolerated a high level of risk?
 11 A. Well, certainly, you know, my personal
 12 observation would be that management are
 13 accountable for ensuring that they run a safe and
 14 efficient operation.
 15 Q. And if the people on site at Texas City,
 16 the management there accepted a high level of risk,
 17 who would be accountable for changing it so that
 18 they would lower the level of risk?
 19 A. Again, I don't know the accountability
 20 roles and responsibilities of individuals; but I
 21 would think that the leadership team for the site.
 22 Q. I am saying that the leadership team for
 23 the site, if they -- and you said that the
 24 management appeared to tolerate a high level of
 25 risk, then who's responsible for changing that?

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1 Would it be the people above the site management?
 2 A. I wouldn't know. My role is to make
 3 recommendations to prevent a recurrence, not to
 4 operate the site.
 5 Q. Well, it goes on to say, if you look at
 6 the next to last paragraph on that page, I see in
 7 the third sentence it says, "Fires were considered
 8 commonplace and a fact of life in this refinery."
 9 That was your finding that fires were commonplace
 10 and a fact of life, true?
 11 A. In terms of the individuals that I
 12 interacted with on the ISOM unit, yes.
 13 Q. Did you know, sir, how often they had
 14 fires in this refinery?
 15 A. Not precisely. I am aware that there
 16 were one or two while I was conducting the
 17 investigation.
 18 Q. Were you aware that based on the
 19 testimony of the fire chief that this refinery has,
 20 on average, one fire per week?
 21 A. I didn't know it was that frequently.
 22 Q. That's pretty shocking, isn't it?
 23 A. That sounds like a high number.
 24 Q. Who is responsible for the fact that they
 25 have a fire a week in this refinery?

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1 A. I -- I would think the line management
 2 organization.
 3 Q. Well, does that include upper management?
 4 A. Yes.
 5 Q. Does it include management all the way up
 6 to the very top?
 7 A. The line management by definition
 8 includes everyone from the top down to the bottom.
 9 Q. The "top" meaning all the way to Lord
 10 Browne in London?
 11 A. Again, I am not -- I am not familiar with
 12 individual's roles and responsibilities. So I
 13 wouldn't know.
 14 Q. Well, "line management" by definition is
 15 top to bottom. So it goes from the lowest person
 16 in the plant to the very highest person in the
 17 company, right?
 18 A. I would think so.
 19 Q. Okay. That's your definition when you
 20 say "line management"?
 21 A. Yes.
 22 Q. Okay. So can you think, based on your
 23 finding, that fires were considered commonplace and
 24 a fact of life, who should we look for to correct
 25 this problem?

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1 A. I would think that -- again this would be
 2 my own personal speculation, that the site
 3 leadership ought to be leading in that regard; but
 4 I would expect them to hold the whole workforce,
 5 you know, to a -- to a higher standard.
 6 Q. There was a failure of leadership
 7 before -- that led up to the events of March 23rd,
 8 correct?
 9 A. There were certain aspects of the
 10 operation that didn't meet the standards that I
 11 would have expected.
 12 Q. In fact, management had a poor
 13 understanding of process safety, correct?
 14 A. In terms of the line management for the
 15 ISOM unit, which is the only management I
 16 interacted with, that statement is correct.
 17 Q. And in addition, there was a poor -- poor
 18 skills by management in identifying hazards in the
 19 plant, correct?
 20 A. Some individuals appeared to have been
 21 trained in hazard inoperability studies, but that
 22 was not universal.
 23 Q. In fact, there were people that had not
 24 been trained in identifying and recognizing hazards
 25 that worked in the ISOM plant both in the workforce

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1 and management, true?
 2 A. I believe there were some individuals who
 3 hadn't, yes.
 4 Q. And there had been -- one of the basic
 5 principles of process safety is to learn from past
 6 mistakes, correct?
 7 A. That's correct.
 8 Q. Lessons learned. That's something you
 9 speak on and teach on as lessons learned?
 10 A. That's correct.
 11 Q. Let's never make the same mistake twice?
 12 A. Yep.
 13 Q. Let's not let history repeat itself,
 14 true?
 15 A. Yes.
 16 Q. Let's learn from our mistakes, true?
 17 A. Yes.
 18 Q. But unfortunately at the Texas City
 19 refinery at the ISOM unit there wasn't any
 20 effective way to learn and implement lessons from
 21 the past, correct?
 22 A. No, that's not true.
 23 Q. Okay. Look on --
 24 A. There were a number of --
 25 Q. -- page 135?

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1 A. Sir?
 2 Q. Look on page 135. Do you see the
 3 paragraph right above 5.17.4, second sentence?
 4 Let's see if I read this correctly. "There did
 5 not -- there did not appear to be any effective
 6 process to learn and implement lessons from
 7 significant incidents outside the Texas City site."
 8 That was a factual finding,
 9 correct?
 10 A. Those are the words stated here, but
 11 they're pre-qualified by the first half of the
 12 sentence.
 13 Q. Right. There are some --
 14 A. There were systems in place, but they
 15 weren't always being used effectively.
 16 Q. Exactly. And who is responsible for the
 17 fact that there was an effective process for
 18 learning from past mistakes? Who's responsible for
 19 that?
 20 A. I am not sure I know who at Texas City is
 21 responsible for that, has that within their roles
 22 and responsibilities.
 23 Q. Is it a management obligation to make
 24 sure that people effectively learn from past
 25 mistakes?

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1 A. I would think that someone in the
 2 leadership team is accountable for ensuring that
 3 someone within the refinery is taking the lead on
 4 that activity.
 5 Q. Isn't it true, sir, that previous
 6 incidents involving the blowdown drum and process
 7 upsets had not been fully investigated or
 8 documented with corrective actions identified to
 9 prevent recurrence?
 10 A. We, in conducting the investigation on
 11 the ISOM unit, looked in particular at the
 12 raffinate splitter and the F-20 blowdown drum with
 13 regard to previous incidents that may or may not
 14 have occurred; and we found a fairly mixed bag in
 15 terms of documentation of those. Some of the more
 16 recent incidents appeared to have been documented
 17 within the Traction database; but going back to
 18 certainly, back before the merger, there was --
 19 there was, at times, very little documentation of
 20 previous incidents.
 21 Q. Well, let's look on page 134 as to what's
 22 actually said as your finding of fact.
 23 Do you see the paragraph above
 24 5.17.3, the second sentence starts out, or second
 25 line says, "Some of the previous incidents

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1 involving the blowdown drum and process upsets were
 2 not fully investigated nor documented with
 3 corrective actions identified to prevent
 4 recurrence."
 5 That was one of your findings,
 6 true?
 7 A. I haven't actually found that language
 8 yet. Which page was that?
 9 Q. Page 134.
 10 A. Okay.
 11 Q. The paragraph above 5.17.3, the second
 12 line.
 13 A. Okay.
 14 Q. You see it starts out in that paragraph
 15 it says, "It's unclear how the MDL, the
 16 superintendent and engineering staff and shift
 17 supervisors, it's unclear how they were cognizant
 18 of previous startup history, right?
 19 A. Yes.
 20 Q. And you go on to say, as a finding of
 21 fact, that some of the previous incidents involving
 22 this very blowdown drum and process upsets had not
 23 been fully investigated nor had been documented
 24 with corrective actions to prevent them from
 25 happening again, right?

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1 A. That's true. That was particularly true
 2 of some of the process upsets where the relief
 3 valves had lifted on prior startups.
 4 Q. And in fact, you document -- in fact,
 5 when you bring a unit online -- and it's called a
 6 startup, that's one of the times when there is the
 7 highest level of risk, true?
 8 A. I wouldn't necessarily say "highest level
 9 of risk." It's certainly a high level of risk
 10 during -- you know, potential risk during a
 11 startup.
 12 Q. Okay. And in fact, BP has a book that
 13 they put out on process safety sharing the
 14 experience it says, "Safe ups and downs for process
 15 units"?
 16 A. I am familiar with that, yes.
 17 Q. Yes, sir. And that book, did you find
 18 that -- it goes on to say about the importance of
 19 things, the very first page is a quote, "It should
 20 not be necessary for each generation to rediscover
 21 principles of process safety, which the generation
 22 before discovered. We must learn from the
 23 experience of others, rather than learn the hard
 24 way. We must pass on the next generation -- to the
 25 next generation a record of what we have learned."

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1 That's one of the basic principles
 2 of process safety, learn from prior mistakes,
 3 right?
 4 A. I think that is a quote from an
 5 individual.
 6 Q. Yep. Do you agree with that statement?
 7 It's in your company's book.
 8 A. Yes, I agree with that general statement.
 9 Q. Okay. But at the Texas City refinery
 10 from your investigation, they weren't learning from
 11 past mistakes because there was no effective system
 12 for making sure everybody knew about the past
 13 mistakes, true?
 14 A. They had some systems that were not being
 15 used effectively, such that some previous incidents
 16 were not being adequately reported and
 17 investigated.
 18 Q. And who --
 19 A. Some were, some weren't.
 20 Q. And who is accountable for that confusion
 21 where only some incidents were reported and
 22 investigated and some were overlooked?
 23 A. Again, I have only looked at the line
 24 management organization for the ISOM unit, and so
 25 any of my comments in the report here apply purely

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1 to the ISOM unit. I have not investigated the rest
 2 of the refinery. So I can but -- say that it's the
 3 line management organization for the -- for the
 4 ISOM unit.
 5 Q. Well, who -- my question was: Who's
 6 accountable for this, "Sometimes we learn from our
 7 mistakes and sometimes we don't even investigate
 8 them"? Who is accountable for that, sir?
 9 A. The line management organization.
 10 Q. It says here, in your BP book, that
 11 because history shows that most serious refinery
 12 fires and explosions have occurred on units during
 13 startups and shutdowns, is that a true statement
 14 that most serious refinery explosions occur during
 15 startups and shutdowns?
 16 A. I don't know. I haven't done an analysis
 17 of previous fires and explosions.
 18 Q. Do you have a copy of this book?
 19 A. I do.
 20 Q. Well, what department wrote this book?
 21 There is a forward by Greg Coleman, but I don't see
 22 an author on this book.
 23 Did you have anything to do with
 24 writing it, or do you know who wrote it?
 25 A. No, I don't know who wrote it. I suspect

<p style="text-align: right;">Page 118</p> <p>1 it was an Amoco heritage document that has been 2 updated more recently since the merger. And the 3 reason I say that is I am aware of several other 4 books in the series that have that "heritage." 5 MR. WILLIAMS: Okay. Objection, 6 nonresponsive. 7 Q. (BY MR. WILLIAMS) Is that speculation on 8 your part, or do you know for sure? 9 A. I think I just said that I was 10 speculating. 11 Q. Okay. 12 A. And the other books dated back to that 13 timeframe. 14 Q. It gives an example in here on page 31 of 15 a startup of an ethylene plant and where 16 instruments failed and a knockout drum apparently 17 overflows and the plant was started up with vital 18 alarms that were inoperative. Have you read that 19 example of that accident report on page 31 of this 20 book? 21 A. If I have read it, it would have been a 22 number of years ago. 23 Q. Well, there were inoperable alarms during 24 the startup of this unit March 23rd, correct? 25 A. I am aware that there was more than one</p>	<p style="text-align: right;">Page 120</p> <p>1 to be good operation. 2 Q. And it goes on, page 46, to say with 3 regard to instruments it says, "As many instruments 4 as possible should be thoroughly checked and placed 5 in service during these steps so they can be used 6 and relied upon as the startup continues." Would 7 you agree with that principle? 8 A. Again, can you read those words to me one 9 more time, please? 10 Q. Yes, sir. 11 "Again as many instruments as 12 possible should be thoroughly checked and placed in 13 service during these steps so that they can be used 14 and relied upon as the startup continues." 15 A. Okay. I am not sure I know the reference 16 to these steps. 17 Q. Well, do you agree that, putting that 18 aside, that alarms should be thoroughly tested and 19 activated before the startup? 20 A. I think it's good operating practice to 21 test alarms prior to startup. 22 Q. Okay. So you found in your factual 23 scenario here that alarms -- certain alarms were 24 not working and that's documented here in your 25 report, Exhibit 21, correct?</p>
<p style="text-align: right;">Page 119</p> <p>1 inoperable alarm or an alarm that was found to 2 malfunction when tested. 3 Q. So even though this was highlighted, this 4 incident put in a black box and highlighted in a 5 booklet put out by your company, it seems that 6 history again repeated itself because people 7 started up a plant with inoperable alarms on 8 March 23rd, right? 9 A. As I said, I am aware that there was, you 10 know, one or more inoperable alarms on March the 11 23rd. 12 Q. In fact, it says in this very book put 13 out by your company on page 30 that "Instruments 14 and controls should be checked, tested for 15 operability and activated as soon as possible." Do 16 you agree that that's a safe procedure? 17 A. Can you read those words again to me? 18 Q. Yes, sir. 19 "Instruments and controls should 20 be checked, tested for operability and activated as 21 soon as possible." 22 A. And what is the context of that? 23 Q. It's during the context of startup. Do 24 you agree with it? 25 A. As a general statement, that would seem</p>	<p style="text-align: right;">Page 121</p> <p>1 A. That's correct. 2 Q. So who was responsible for the fact that 3 they were starting it up with alarms that were not 4 working? 5 A. The -- some of the alarms and control 6 equipment were checked during the temporary outage 7 prior to the startup. I am aware that that work 8 may not have been completed prior to the startup 9 proceeding. 10 Q. Why? 11 A. Unfortunately the management maintenance 12 system records do not give us a proper audit trail 13 to demonstrate clearly what was done and what 14 wasn't done. 15 Q. Do you know you also -- you found in your 16 investigation that safety action items had been 17 past due all the way back from 2003, correct? 18 A. Again, I would need to know the reference 19 as to where that is. 20 Q. Page 67. 21 A. 67. 22 Q. Do you see the paragraph right above 23 5.9.4? Do you want to read that sentence to the 24 jury, please. 25 A. "As of March the 23rd, 2005, the ISOM</p>

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1 unit had seven safety action items that were past
 2 due from the 2003 HAZOP revalidation."
 3 Q. Now, my question to you --
 4 A. Sorry. "None of these action items were
 5 directly related to the raffinate splitter or the
 6 blowdown drum."
 7 MR. WILLIAMS: Objection,
 8 nonresponsive.
 9 Q. (BY MR. WILLIAMS) I want to talk about
 10 the fact that there were seven safety action items
 11 that were past due. Who is responsible for that?
 12 A. I would have expected those safety action
 13 items to have been prioritized and to have been
 14 completed before the ISOM unit started up.
 15 Q. Who is responsible for that failure?
 16 A. The line management organization for the
 17 ISOM.
 18 Q. All the way --
 19 A. However --
 20 Q. -- from top to bottom?
 21 A. Sorry. Can I just qualify my answer,
 22 please?
 23 Q. If you need to, if it's responsive.
 24 A. Yeah, well, these seven safety action
 25 items, although they were past due, relate to the

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1 ISOM unit, not to the raffinate splitter or the
 2 blowdown drum; and so the mere action of starting
 3 up the raffinate splitter or the blowdown drum,
 4 these seven action items were not relevant.
 5 MR. WILLIAMS: Objection,
 6 nonresponsive.
 7 A. Now, prior to the ISOM unit starting up,
 8 if these were deemed to be a high priority, a high
 9 risk issue, then I would have expected those seven
 10 to have been addressed prior to the ISOM unit
 11 starting up; but on March the 23rd the ISOM unit
 12 was shut down.
 13 MR. WILLIAMS: Objection,
 14 nonresponsive.
 15 Q. (BY MR. WILLIAMS) Let me ask you on
 16 the -- are you familiar with the M-A-R -- MAR
 17 report that was done at Texas City in March and
 18 April of 2003?
 19 A. I have -- I read it last year.
 20 Q. Okay.
 21 A. So I am broadly aware of its content.
 22 Q. Now, the MAR report, according to your
 23 fact finding, ignored the risk due to blowdown
 24 drums or the ISOM unit, true?
 25 A. I am not sure I would use the word

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1 "ignore."
 2 Q. Okay. Let's look --
 3 A. The major accident --
 4 Q. -- on page 66.
 5 A. The major accident risk analysis is a
 6 high level QRA, quantitative risk assessment
 7 technique that is not meant to be a detailed
 8 analysis. Having said that, the one for Texas City
 9 addressed the top 80 risks within the site. None
 10 of the -- my understanding is that none of the
 11 blowdown drums and stacks fell within the top 80
 12 risks --
 13 MR. WILLIAMS: Objection,
 14 nonresponsive.
 15 A. -- that were addressed.
 16 Q. (BY MR. WILLIAMS) Let me look -- let's
 17 look on page 66 of your report.
 18 Do you see in the -- right under
 19 the bullet points there the second sentence, the
 20 sentence part of it says that -- referring to the
 21 MAR report that "It did not recognize or include
 22 any risk due to blowdown drums or the ISOM unit";
 23 is that correct?
 24 A. That's correct. That's what I believe I
 25 just said in my previous answer.

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1 Q. And the possibility of liquid overflow in
 2 relief was not even considered, true?
 3 A. That did not feature in the top 80 risks
 4 for the Texas City site.
 5 Q. Well, why didn't they consider liquid
 6 overflow? Why would they ignore that?
 7 A. Because the MAR is a high level QRA. It
 8 is not a detailed QRA technique. It was never
 9 meant to be a detailed QRA technique, and I would
 10 have expected a detailed QRA would have addressed
 11 those -- those items.
 12 Q. Well, where is that detailed QRA that
 13 addressed the liquid overflow?
 14 A. I am not sure that a detailed QRA exists,
 15 but it may.
 16 Q. Why not?
 17 A. I don't know.
 18 Q. Why -- can you -- could you show me any
 19 document anywhere in BP's possession that ever
 20 looked at the possibility of a liquid overflow on
 21 the -- on this ISOM unit?
 22 A. I am not sure that I know of all the
 23 studies that have been conducted. We certainly
 24 looked in detail at the major accident risk
 25 assessment because that was conducted in 2003, only

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1 a couple of years before. But we certainly
 2 recognize that it was a high level analysis, and I
 3 was actually quite surprised that it looked at as
 4 many as 80 of the highest risks on the site.
 5 MR. WILLIAMS: Objection,
 6 nonresponsive.
 7 Q. (BY MR. WILLIAMS) I am focusing on the
 8 overflow liquid overflow, the possibility of liquid
 9 overflow. You indicate that on page 66. Can you
 10 show me anywhere where the people at BP or any of
 11 the people that it hired as consultants ever looked
 12 at that possibility of liquid overflow, ever
 13 investigated it, assessed it, analyzed it or did
 14 anything to prevent it? Can you show me a
 15 document?
 16 A. I am not aware of any, but I do not know
 17 all of the documents that exist.
 18 Q. And your investigation certainly didn't
 19 reveal any document or anybody that said, "We had
 20 investigated it, taken in account, analyzed and
 21 tried to lower the risk of liquid overflow," true?
 22 A. I am not aware of any document that
 23 exists but again, you know, in the course of the
 24 investigation, I believe we looked at 27,000
 25 documents and there could be other documents that

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1 exists that although we spent, you know, the best
 2 part of nine or ten months conducting the
 3 investigation, you know, we didn't find every
 4 document I am sure.
 5 Q. So your investigation, which you claim is
 6 one of the most thorough in history that lasted
 7 nine or ten months, looked at thousands of pages of
 8 documents, had a team of ten people, found no
 9 evidence of any document where the possibility of
 10 liquid overflow in this ISOM unit had ever been
 11 taken into account, analyzed or any effort to
 12 reduce that risk, true?
 13 MR. DENNY: Objection, form.
 14 A. I believe there may have been one HAZOP
 15 study that addressed a high liquid level and that
 16 HAZOP study, I am trying to remember the details
 17 now, evaluated the safeguards that were in place
 18 and may have deemed those to be adequate. My
 19 memory --
 20 Q. Oh, really?
 21 A. -- is a little hazy, but I think there is
 22 a HAZOP study that looks at high liquid level.
 23 Q. Well, tell me what the safeguards were
 24 that you are claiming were there.
 25 A. I would have to look at the HAZOP study

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1 to remember what they were.
 2 Q. Well, wait a minute. You don't have to
 3 look at the study. You investigated this thing for
 4 nine or ten months. What was there in place on
 5 March 23, mechanical interlocks or things of that
 6 nature, that would have prevented liquid overflow?
 7 A. Okay. I cannot remember what the actual
 8 HAZOP study says; but on March the 23rd, in terms
 9 of what we determined on our investigation, clearly
 10 there were two high level alarms. There were
 11 obviously the potential for operator intervention,
 12 which would be considered.
 13 Plus, I think, one would probably
 14 take into account the actual physical size of the
 15 raffinate splitter, you know, in that -- you know,
 16 there is a large residence time there so that if --
 17 if you have -- if you are relying upon operator
 18 intervention, then there was probably sufficient
 19 time given an alert and a competent operator and
 20 supervisors.
 21 MR. WILLIAMS: Let's replace the
 22 tape. Do you need a break or can we keep going?
 23 MR. DENNY: I do.
 24 THE VIDEOGRAPHER: Off the record
 25 at 2:33 p.m., ending Tape 4 -- 3.

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1 (Recess taken.)
 2 THE VIDEOGRAPHER: On the record,
 3 2:44 p.m., beginning Tape 4.
 4 Q. (BY MR. WILLIAMS) Let's talk about --
 5 the subject of overfilling the tower. Is it true
 6 that in the startup procedures there is no
 7 reference to the hazards associated with
 8 overfilling the tower?
 9 A. I don't recall any.
 10 Q. Wait a minute. Is that -- is it true
 11 that there -- that the startup procedures did not
 12 address the hazards associated with overfilling --
 13 A. I don't -- I don't recall any -- any
 14 details on that.
 15 Q. Well, look at page 69 of your report.
 16 The first paragraph, last sentence says, "There is
 17 no reference to the hazards associated with
 18 overfilling the tower."
 19 A. All right.
 20 Q. True?
 21 A. Yes, that's correct.
 22 Q. So the operators in their startup
 23 procedures -- in their standard operating
 24 procedures, nobody told them in those written
 25 procedures about hazards associated with

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1 overfilling the tower, correct?
 2 A. Not specifically in this startup
 3 procedure for the raffinate splitter.
 4 Q. What do you mean "not specifically"? It
 5 just isn't there specifically, unspecifically, red,
 6 white or green, true?
 7 MR. DENNY: Objection, form.
 8 Q. (BY MR. WILLIAMS) Is it --
 9 A. Since the incident, I have had the
 10 opportunity to discuss the circumstances with my
 11 peers within the Center for Chemical Process
 12 Safety; and the general consensus was that none of
 13 the process safety experts would have expected a
 14 specific reference to overfilling the tower.
 15 In fact, most of the companies
 16 that I spoke to wouldn't have even addressed that
 17 in a HAZOP study given that the -- given the size
 18 of this vessel, you know, it takes, you know, three
 19 and a half hours of filling the vessel at, you
 20 know, 20,000 barrels a day and not taking anything
 21 out and even then it is insufficient to fill the
 22 vessel to the overflow situation.
 23 And so while a smaller vessel, it
 24 may be possible to overfill, and that would be if
 25 you deem a credible scenario. None of my peers

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1 that I have spoken with would have envisioned a
 2 similar circumstance to that which happened on
 3 March the 23rd.
 4 MR. WILLIAMS: Objection,
 5 nonresponsive.
 6 Q. (BY MR. WILLIAMS) My question, if you'll
 7 recall, sir, is: Is it true that the standard
 8 operating procedures given to the operators by
 9 management did not address the hazards associated
 10 with the overfill of the tower?
 11 A. My understanding is that was not
 12 specifically included in the startup procedure for
 13 the raffinate splitter, but I understand that the
 14 general principles of plant operation, the need to
 15 conduct, sort of, simple mass balances of what goes
 16 in, you know, equals what must come out on the
 17 other -- the other side are issues that are covered
 18 in the general training of plant operators.
 19 MR. WILLIAMS: Objection,
 20 nonresponsive.
 21 Q. (BY MR. WILLIAMS) I am -- do you know
 22 what SOPs are?
 23 A. The -- yeah, standard operating
 24 procedure.
 25 Q. Okay. The SOPs that you looked at in

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1 your investigation, did they or did they not
 2 address the hazards associated with overfill,
 3 liquid overfill?
 4 A. And I think I answered in my previous
 5 answer.
 6 Q. You didn't, so answer it "yes" or "no"?
 7 A. Standard operating procedure for the
 8 startup of the raffinate splitter does not address
 9 the hazards associated with overfilling of the
 10 tower.
 11 Q. Thank you.
 12 Now, in the original process
 13 hazard analysis or the revalidations of the process
 14 hazard analysis which you referred to, I think, as
 15 HAZOPs, did they ever address liquid overfill?
 16 A. I seem to remember that one of them did.
 17 Q. And what is your recollection of what it
 18 said?
 19 A. My recollection is not very good, but
 20 I -- I recall looking at it last year and I think
 21 it identified the risk that determined the
 22 safeguards were adequate. My memory might be
 23 playing tricks on me.
 24 Q. So let's talk about -- a safeguard, is
 25 that a mechanical safeguard or when you say

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1 "safeguard" does that mean an operator?
 2 A. It could mean both. If you are
 3 conducting a HAZOP study, then it can be both.
 4 Administrative procedure, maybe -- you know, maybe
 5 something which the operators are required to do,
 6 or it could be a piece of hardware equipment.
 7 Q. Okay. So let's take again this liquid
 8 overfill situation. It is possible to have a
 9 liquid overfill of the raffinate tower, and it is
 10 possible to have a liquid overfill of the blowdown
 11 drum, true, and the stack on top of it?
 12 A. It's possible.
 13 Q. In fact, it happened, didn't it?
 14 A. The -- the raffinate splitter was not
 15 overfilled.
 16 Q. Well, it overflowed?
 17 A. It was more -- there was more liquid put
 18 into it than there should have been and then the
 19 vaporization in the bottom of the tower is what
 20 lifted the liquid up and over into the overhead
 21 line.
 22 Q. Okay. Was that a liquid overflow?
 23 A. Liquid flowed into the overhead line due
 24 to the vaporization in the bottom of the tank.
 25 MR. WILLIAMS: I didn't ask you

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1 that. Objection, nonresponsive.
 2 Q. (BY MR. WILLIAMS) Was there an overflow
 3 of liquid in the raffinate tower on March 23rd?
 4 A. Not in the sense that the vessel was
 5 filled to the point where it overflowed.
 6 MR. WILLIAMS: Objection,
 7 nonresponsive.
 8 Q. (BY MR. WILLIAMS) Was there liquid that
 9 overflowed over -- out of the top of the raffinate
 10 tower?
 11 A. There was liquid that flowed from the top
 12 of the tower into the overhead line, and it was
 13 lifted by vaporization in the bottom of the tank.
 14 Q. I am not asking -- you know, I am not
 15 stupid. I understand your claim about this vapor
 16 stuff. So let's focus on just -- you want to use
 17 the term "liquid overflow"? Is it true that a
 18 liquid overflow occurred on March 23rd of the
 19 raffinate tower?
 20 A. That has a different meaning to different
 21 people so I --
 22 Q. So what's your language?
 23 A. That's why I would prefer to explain the
 24 circumstances -- the facts of what actually
 25 happened --

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1 Q. Well, I --
 2 A. -- on March the 23rd.
 3 Q. I am just trying to label it. Was it
 4 liquid that -- that came out of the top of the
 5 raffinate tower?
 6 A. Yes, there was. Liquid flowed into the
 7 overhead line at the top of the tower.
 8 Q. And was it an overflow?
 9 A. That has different meanings to different
 10 people.
 11 Q. Well, I didn't ask you if I had different
 12 meanings to different people. I am asking you,
 13 sir, was it an overflow?
 14 MR. DENNY: Objection, form.
 15 A. In the sense that my definition of an
 16 overflow would cover the situation where a high
 17 level was lifted up and over into the overhead
 18 line, then the answer would be "yes."
 19 Q. Okay. So we can agree that it's an
 20 overflow of liquid, right?
 21 A. In terms of the definition that I just
 22 gave you.
 23 Q. Okay. So March 23rd there is an overflow
 24 of liquid, agreed, out of the top of the raffinate
 25 tower?

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1 A. Yeah, per my definition of an overflow.
 2 Q. Okay. So let's talk about is it
 3 technically feasible to have some type of shut off
 4 that would prevent there being an overflow of
 5 liquid out of the top of this tower?
 6 A. Yes, it would be. I think it would be
 7 technically feasible.
 8 Q. What would it look like? What would it
 9 be?
 10 A. It might be a trip that tripped the feed
 11 pump and probably turned the fires off the furnace
 12 on a high level.
 13 Q. Okay. So to prevent an overflow of the
 14 raffinate tower on March 23rd, it's technically
 15 feasible to have something as simple as a trip that
 16 stops the pump of liquid coming in and/or stops the
 17 heating at the bottom of the tower, true?
 18 A. That would be technically feasible and
 19 there may be other ways that it could be done, but
 20 that would be one way.
 21 Q. Now, we use these types of trips, as you
 22 call them, all the time, for instance the toilet
 23 bowl. It fills up to a certain level and there is
 24 a trip that keeps it from overflowing, right?
 25 A. I don't know. I -- I have overflowed a

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1 toilet before now.
 2 Q. No, no. I am talking about the bowl in
 3 the back where the water is stored.
 4 It gets -- there is a float?
 5 A. I am sorry.
 6 Q. There is a float in your toilet bowl that
 7 gets up to a certain level, and it cuts off the
 8 inflow of water into that reservoir at the back of
 9 your toilet, right?
 10 A. I am not an expert on toilets. I have
 11 used them but..
 12 Q. You have never looked in there?
 13 A. No.
 14 Q. Well, let's take another example.
 15 Do you fill up your gas tank with
 16 gas?
 17 A. Yes.
 18 Q. What happens when your gas tank gets
 19 full? Does the nozzle pumping gas into your tank
 20 stop?
 21 A. Yes.
 22 Q. It stops because of what you call a trip?
 23 A. Yeah, I am not sure how it works, but I
 24 guess there is some form of a trip.
 25 Q. Pretty common to have these kinds of

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1 systems where when something gets up to the top, it
 2 shuts off the flow into the vessel, right?
 3 A. I have seen them in a variety of
 4 situations.
 5 Q. Yeah, we use them in our -- when we fill
 6 up our cars every day, right?
 7 A. Yeah. I don't understand how it, you
 8 know, a gas pump works, but, yeah, I am guessing
 9 that's some form of trip.
 10 Q. So tell the ladies and gentlemen of the
 11 jury why -- what your investigation revealed as to
 12 why there wasn't something so simple as to stop the
 13 overflow of liquid into this raffinate tower on
 14 March 23rd.
 15 A. There seemed to be a reliance upon, you
 16 know, an attentive alert operator to intervene upon
 17 an alarm.
 18 Q. Why would you -- we will get back to the
 19 operator, I assure you. Why is it that you didn't,
 20 you know -- did you ever fill up your car before
 21 they put those little trips on the gas pump and
 22 overfill your gas tank when you weren't paying
 23 attention?
 24 A. I don't think I have ever overfilled a
 25 gas tank, but I don't know when those trips were

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1 installed.
 2 Q. Well, they were put on there -- those
 3 trips were put on there so that you do not overfill
 4 your gas tank because, obviously, people used to
 5 overfill their gas tanks, right?
 6 A. I don't know. I guess so. I will take
 7 your word for that.
 8 Q. Okay. Well, why wouldn't -- and there
 9 was somebody supposed to be alert filling up the
 10 gas tank. I mean, why would you put a trip on --
 11 BP has trips on their hoses that fill up gas tanks
 12 at their plants, correct -- I mean, at their gas
 13 stations, right?
 14 A. Well, there is none in the Texas area,
 15 but, yeah, I -- I filled up at a BP gas station in
 16 Ohio, yeah.
 17 Q. Right. And if you try and -- if you go
 18 to a BP gasoline station, you really can't overfill
 19 your gas tank because it cuts it off when it gets
 20 up to the top. It automatically cuts it off,
 21 right?
 22 A. Yes.
 23 Q. So why didn't you put something similar
 24 technology to cut off the level of liquid going
 25 into this raffinate tower? Why didn't they do

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1 that?
 2 A. I don't know, but I can speculate that
 3 their HAZOP showed that they had adequate
 4 safeguards with, you know, an alert, attentive
 5 operator responding to an alarm.
 6 Q. Well, what safeguards are there that
 7 existed other than the operator?
 8 A. The alarms.
 9 Q. Are you talking about the alarms that we
 10 have talked about that didn't work?
 11 A. One of the high level alarms did work.
 12 Q. Oh, really. And it showed -- and how --
 13 it would trip at what level?
 14 A. It didn't trip, but it alarmed at
 15 72 percent.
 16 Q. At what height?
 17 A. It was probably about 7 feet, 7 or
 18 8 feet, something of that order in the bottom of
 19 the tank.
 20 Q. Yeah. So the -- this alarm that you are
 21 referring to trips at 7 or 8 feet, and how tall was
 22 that tower, sir?
 23 A. I think it was 164 feet between tangents.
 24 Q. Yeah.
 25 A. So just a little bit more than that.

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1 Q. So high level, this alarm goes off at 7
 2 or 8 feet and the tower's -- what did you say, 170
 3 something feet or 160 feet?
 4 A. 164 between tangents.
 5 Q. So why was there an alarm -- excuse me.
 6 Let me retract.
 7 The alarm -- was there any
 8 instrumentation that showed that you would say that
 9 the tower had 15 feet of liquid in it?
 10 A. Well, first of all, the normal operating
 11 level for that tower --
 12 Q. I didn't ask you that.
 13 A. -- is -- the normal operating level for
 14 that tower is about 5 feet, give or take a few
 15 inches; and the high level alarm is set at
 16 72 percent, which is about 7 or 8 feet. So that's
 17 well above the normal operating level. The level
 18 indication goes all the way up to about 10 feet,
 19 which is about double the normal operating level.
 20 MR. WILLIAMS: Objection,
 21 nonresponsive.
 22 A. That is covered in the procedures.
 23 MR. WILLIAMS: Objection,
 24 nonresponsive.
 25 Q. (BY MR. WILLIAMS) Let me make this

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1 clear. Is there any level -- the level indicator
 2 shows 100 percent full at what height of liquid in
 3 that raffinate tower?
 4 A. Approximately 10 feet.
 5 Q. And that -- is there anything then that
 6 differentiate when it gets to 11 feet, or is it
 7 still showing 100 percent?
 8 A. It will still show 100 percent.
 9 Q. What about when it's --
 10 A. And the high level alarm will still be
 11 illuminated.
 12 Q. What about when it's at 111 feet? Does
 13 it still have the exact same indication as it does
 14 at 11 feet?
 15 A. Unless you have started to heat the
 16 contents of the tower, the answer is "yes," and the
 17 level alarm will still be a illuminated showing it
 18 has a high level.
 19 Q. In fact, there is no instrument on this
 20 tower that indicates clearly directly to the
 21 operator the level once it passes 10 feet, correct?
 22 A. That is correct, but that is entirely
 23 consistent with the design of every other
 24 distillation column of a similar sort of duty, I
 25 think, within the whole industry.

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1 MR. WILLIAMS: Objection,
 2 nonresponsive.
 3 Q. (BY MR. WILLIAMS) So let's go back.
 4 What are the safeguards that were in existence to
 5 prevent the liquid overflow? You said there is an
 6 alarm that sounds at 7 feet. There should be a
 7 level indicator that goes up -- only up to 10 feet.
 8 And then there is an operator.
 9 Anything else?
 10 A. Not that I can think of off the top of my
 11 head, but clearly one would expect the operator to
 12 conduct some form of simple mass balance of what
 13 goes in must come out, which will give him an
 14 indication of what the level is likely to be.
 15 MR. WILLIAMS: Objection to the
 16 nonresponsive part starting clearly.
 17 Q. (BY MR. WILLIAMS) Now, operator error,
 18 is that something that is a root cause in this
 19 particular incident?
 20 A. Certainly there was a -- appears to be a
 21 lack of attention and a number of errors on the
 22 part of the operator and failure to follow
 23 procedures.
 24 MR. WILLIAMS: Objection,
 25 nonresponsive.

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1 A. It was not a root cause, but it was a
 2 contributory factor.
 3 MR. WILLIAMS: Objection,
 4 nonresponsive.
 5 Q. (BY MR. WILLIAMS) My precise question:
 6 Operator error, was it a root cause of this fire
 7 and explosion?
 8 A. I would have to check the report again
 9 just to be -- accurately answer that question.
 10 Q. It's right in front of you. Go ahead.
 11 A. Yeah, we didn't classify operator error
 12 as a root cause.
 13 Q. Okay. So I can get it real clear in the
 14 record, you are a root cause specialist. You were
 15 the root cause specialist in this investigation,
 16 and you and your other team members did not find
 17 operator error to be a root cause of this fire and
 18 explosion, true?
 19 A. That is correct.
 20 Q. Now, it is well-known to process safety
 21 experts such as yourself that operators make
 22 mistakes and are -- it is to be expected that
 23 operators will make mistakes, true?
 24 A. It has been known.
 25 Q. In fact, there are books written about

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1 the subject of operator error; and it is usually
 2 referred to as human factors, correct?
 3 A. That's one terminology, yes.
 4 Q. You know and other people at BP knew
 5 before this fire and explosion that operators make
 6 errors typically as a result of the situation that
 7 management has placed them in in the workplace,
 8 correct?
 9 MR. DENNY: Objection, form.
 10 A. I am aware that operators can make errors
 11 from time to time in operating a plant and
 12 equipment.
 13 Q. (BY MR. WILLIAMS) Well, the direct --
 14 have you ever read "guidelines for preventing human
 15 errors in process safety," Put out by the American
 16 institute of chemical engineers in 1994?
 17 A. No.
 18 Q. Do you find that the American Institute
 19 of Chemical Engineers is a reliable and
 20 authoritative author when it comes to writing on
 21 the subject of human error in chemical process
 22 safety?
 23 A. Their books are held in high regard, but
 24 an amalgam of a variety of different experts'
 25 opinions and advice and guidance and sometimes, you

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1 know, experts can, you know, agree to disagree or
 2 have a different interpretation but --
 3 Q. But authoritative --
 4 A. -- by and large their books are -- are
 5 well respected.
 6 Q. All right. Now, if we look at one of
 7 their -- a quote from their book says that "The
 8 factors that directly influence human error, that
 9 would be operator error, are ultimately controlled
 10 by management." Do you agree?
 11 A. That's one -- one factor.
 12 Q. Do you agree that it's an important
 13 factor?
 14 A. I would have to think about that. It's
 15 certainly one factor.
 16 Q. You wouldn't say it's an unimportant
 17 factor, would you?
 18 A. I am not sure.
 19 Q. Do you know of anybody at the Texas City
 20 plant that was trained in human factors?
 21 A. No, I didn't investigate that.
 22 Q. Did you investigate in your investigation
 23 to see what the level of knowledge was in the plant
 24 regarding operator error and to anticipate operator
 25 error?

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1 A. The only aspect of human factors that I
 2 investigated was the supervision and operators
 3 understanding and competency to follow the
 4 operating procedures. So from that aspect of human
 5 factors is what I investigated.
 6 Q. There is a subject matter called "human
 7 factors" or "human errors" or "operator error,"
 8 right?
 9 A. It's a huge topic, yes.
 10 Q. True. This huge topic, did you
 11 investigate whether or not management -- line
 12 management had awareness of this issue and had been
 13 properly trained on this issue?
 14 A. Which aspect of human factors?
 15 Q. Any aspect.
 16 A. Yes, I think I just answered in my
 17 previous answer saying that I looked at supervision
 18 and the operators understanding and competency with
 19 regard to the operating procedures for the ISOM
 20 unit.
 21 Q. And what did you find?
 22 A. That is one aspect of human factors.
 23 Q. Did they get a passing grade or a failing
 24 grade?
 25 A. By and large most of them seemed to

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1 understand the startup procedure for the raffinate
 2 splitter. There was -- there was maybe some
 3 aspects that were not fully understood; but
 4 generally speaking, they appeared to have, you
 5 know, an understanding of the procedure and what it
 6 was required.
 7 Q. So let's get back. We were talking about
 8 this liquid overflow situation.
 9 To prevent liquid overflow, was
 10 there anything in existence that did not directly
 11 and totally depend on the operator?
 12 A. I guess the supervisor, the presence of a
 13 supervisor monitoring the startup.
 14 Q. Was there anything -- okay.
 15 Why didn't a supervisor catch the
 16 issue -- the overflow issue?
 17 A. On March the 23rd, the supervisor left
 18 the unit.
 19 Q. Who allowed that?
 20 A. I am not -- I am not sure who allowed
 21 that. What I would say is that in terms of what
 22 the investigation team determined, the supervisor
 23 not only left the unit, he left the site without
 24 ensuring that there was a clearly understood backup
 25 in terms of line management that would cover his

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1 role in monitoring the startup.
 2 MR. WILLIAMS: Objection,
 3 nonresponsive.
 4 Q. (BY MR. WILLIAMS) Why would -- why
 5 would -- why was it allowed for the supervisor to
 6 leave the entire plant without a back up?
 7 A. I don't know. He chose to leave without
 8 ensuring that there was an adequate back up.
 9 Q. Well, did your investigation reveal why?
 10 A. No, but it was one of the facts that we
 11 established. It was considered in the root cause
 12 analysis; and we made some recommendations that in
 13 future to correct, you know, prevent any sort of
 14 recurrence, there to be a clear accountability at
 15 all times for supervision of plants, specially when
 16 they are starting up.
 17 MR. WILLIAMS: Objection,
 18 nonresponsive after no.
 19 Q. (BY MR. WILLIAMS) Now, let's go back.
 20 Liquid overflow of the raffinate tower, was there
 21 anything to prevent the liquid overflow of that
 22 tower on March 23rd that did not rely solely and
 23 directly on human beings?
 24 A. Not that I can think of --
 25 Q. Now --

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1 A. -- at this moment.
 2 Q. To have some kind of automatic switch
 3 that cuts off the flow and/or the heat in the tower
 4 when it gets above, say, 10 feet, would that type
 5 of switch be -- I think you have acknowledged it's
 6 technically feasible, right?
 7 A. Yeah, I believe it's feasible. I am not
 8 a control engineer but --
 9 Q. Is it --
 10 A. -- I believe it's feasible.
 11 Q. Is it cost prohibitive when you take into
 12 account the events that occurred on March 23rd?
 13 A. I have no idea how much it would cost. I
 14 am not a control engineer.
 15 Q. Well, when you take into account the loss
 16 of lives and the property and destruction and the
 17 people that were injured, do you think it's cost
 18 prohibitive?
 19 A. I would imagine it costs somewhat less
 20 than the -- than what you just referred to.
 21 Q. Why wasn't it there?
 22 A. I think I indicated with a previous
 23 answer that the raffinate splitter was typical
 24 of -- the design of it was typical of many, many
 25 similar distillation columns in the industry and

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1 that we have made a recommendation in our final
 2 report that if there is any intention to refurbish
 3 and start up the raffinate splitter, then some form
 4 of layer of protection analysis ought to be
 5 conducted and that will determine what is the most
 6 appropriate level of control and instrumentation
 7 for that vessel in the future.
 8 Q. Well, let's -- let's back up.
 9 Liquid overfill is not something
 10 that's unknown to chemists and to engineers, people
 11 operating refineries. It's something that is a
 12 pretty well-known potential hazard, true?
 13 MR. DENNY: Object to the form.
 14 A. I believe that it has been considered as
 15 a possible occurrence in previous incidents, yeah.
 16 Q. (BY MR. WILLIAMS) Sure. There is a
 17 whole history of liquid overfills out there in the
 18 chemical industry. It isn't anything that is new
 19 and cutting edge. It's one of those really kind of
 20 basic common sense problems that you have got to
 21 account for, right?
 22 A. I am aware that previous incidents have
 23 occurred on much smaller vessels than the raffinate
 24 splitter.
 25 Q. People need to learn from mistakes. Now

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1 tell the jury what had been taught within the BP
 2 community about hazards of liquid overfill. What
 3 lessons learned have been distributed to the people
 4 at BP?
 5 A. I don't know.
 6 Q. Well, did you know that there was a
 7 liquid overfill at Phillips at one of their plants
 8 in Pasadena?
 9 A. No.
 10 Q. And it burned a couple of people to death
 11 in 1999?
 12 A. I was aware of that Phillips have had one
 13 or two incidents in Pasadena in the 1980s and
 14 Nineties, but I don't remember the exact
 15 circumstances.
 16 Q. Well, that goes back to what you found in
 17 the report. There was no effective means of
 18 communicating at the Texas City site about lessons
 19 learned from other plants, true?
 20 A. I don't work at Texas City site; but in
 21 terms of an effective system to share lessons
 22 learned from previous incidents on the ISOM unit,
 23 we did not see a fully effective system. There
 24 were some systems in place like quarterly safety
 25 bulletins and so forth, but that had not been

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1 effectively communicated to everyone who perhaps
 2 needed to know.
 3 Q. In fact, whatever system you had, you
 4 weren't even aware of a liquid overflow -- overfill
 5 situation at Phillips in 1999, even though you are
 6 a process safety expert, right?
 7 A. I think I indicated to you that I am
 8 aware of a number of incidents that have occurred
 9 at Phillips over the years, but I don't remember
 10 all of the details concerning each and every one of
 11 those.
 12 Q. Well, what do you know historically about
 13 liquid overfills that have resulted in catastrophic
 14 fires and explosions?
 15 A. I have worked predominantly in the
 16 exploration and production industry. And so, you
 17 know, from time to time, I do -- do look at
 18 incidents in refining and chemical plants and so
 19 forth to see if they have any relevance to
 20 exploration and production, but I do not routinely
 21 work on refineries and chemical plants.
 22 Q. Pre-startup review, was there a
 23 pre-startup review required to be done on
 24 March 23rd before they started up the ISOM unit?
 25 A. The startup procedure for the raffinate

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1 splitter does have a startup review included as one
 2 of the preliminary tasks.
 3 Q. The problem is though on March 23rd they
 4 ignored that procedure; and no one did a -- no one
 5 performed a pre-startup review, correct?
 6 A. That is my understanding.
 7 Q. That was your factual --
 8 A. Yes.
 9 Q. -- finding, correct?
 10 A. Yes.
 11 Q. Did you find as a factual finding that
 12 there were a number of gaps in training, delivery
 13 and topics including the PSM policies as a gap?
 14 A. There were a number of gaps that we
 15 identified that are listed in the report. I don't
 16 recall, off the top of my head, what they all were;
 17 but I think I made an attempt to try and list some
 18 of them at least in the final report.
 19 Q. You did; and on page 85 you listed PSM
 20 policies, process safety booklets, and process
 21 safety standards and guidelines, those three items
 22 there at the bottom as being gaps in training,
 23 correct?
 24 A. Yes, those items were -- were listed in
 25 the -- in the training program; but we couldn't

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1 actually find what was done in respect of those
 2 items other than to give those green process safety
 3 booklets to each of the control rooms on the site.
 4 Q. So there -- you couldn't find where
 5 anybody had been tested on their knowledge or
 6 whether -- no way to verify if people had actually
 7 even taken the time to open those books, true?
 8 A. We couldn't find any documentation.
 9 Q. Okay. Who was responsible for that lack
 10 of training to make -- in that area?
 11 A. I am not sure I know who is responsible.
 12 Q. Who is accountable?
 13 A. I would imagine that, again this is my
 14 speculation, that it would be the line management
 15 organization for the ISOM unit.
 16 Q. Gun -- what's a gun drill?
 17 A. A gun drill is -- is like a sort of an
 18 emergency exercise where periodically, you know, a
 19 supervisor will say to his operators, you know,
 20 "Let's do a, sort of, a what if sort of scenario
 21 on -- let's assume that we had a major power
 22 failure."
 23 Suddenly, you know, what would --
 24 what would we have to do to make sure that our unit
 25 is safe and no one gets hurt.

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1 Q. Could you find any written evidence in
 2 the training records that gun drills had actually
 3 occurred at that unit?
 4 A. I think we found some -- there had been
 5 one or two gun drills once upon a time. And that
 6 the recent -- I think it may have been an audit or
 7 an investigation of a -- of another incident that
 8 identified or made a recommendation to re-establish
 9 gun drills and that at least as regards the ISOM
 10 was concerned, they had started to train the
 11 operators on -- again on how to do gun drills; but
 12 they had not implemented a program. You know, they
 13 hadn't fully followed through on that program. The
 14 training had only just been completed, I think,
 15 prior to March the 23rd; and they hadn't fully
 16 established a program of begun drills.
 17 Q. Well, why had they not followed
 18 through --
 19 A. Well, I --
 20 Q. Whether or not they had established a
 21 program on this even though it had had an action
 22 item, why had it not been done?
 23 A. I think we are talking, actually, about a
 24 relatively short period of time from when the
 25 training was put in place to between then and March

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1 the 23rd. I can't remember the exact dates now,
 2 but it hadn't been fully implemented. It was still
 3 work in progress, I guess.
 4 Q. Well, let's look at your conclusion on
 5 page 90 of your report. The first sentence under
 6 "conclusions: There was a lack of rigger and
 7 follow through in the area of training."that was
 8 your factual finding?
 9 A. That's correct.
 10 Q. And you went further to show with regard
 11 to records that records showed incomplete training,
 12 and there was little verification that all required
 13 training was current. That was your factual
 14 finding?
 15 A. That's correct.
 16 Q. And that with regard to gun drills, you
 17 said that there was a lack of gun drills to
 18 reinforce practical knowledge, and that meant that
 19 operators theoretical knowledge was not complete
 20 and rarely witnessed. That was your finding --
 21 factual finding?
 22 A. That's correct. As I said I think the
 23 training on gun drills had only recently been
 24 completed and they hadn't actually --
 25 Q. They hadn't done it?

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1 A. -- they had started to implement one a
 2 month or whatever the intention was.
 3 Q. Pure speculation as to whether they would
 4 have completed it, right?
 5 A. Yes.
 6 Q. Let's go to the blowdown stacks for a
 7 minute.
 8 From an environmental standpoint
 9 what's better: Have a stack that vents to the air
 10 or stack that vents to the flare -- a closed flare
 11 system at the plant?
 12 A. I am not an environmental expert, and I
 13 guess it depends on whether you believe in
 14 greenhouse gases and global warming. I am not an
 15 expert on environmental matters.
 16 Q. Did the -- were the blowdown stacks and
 17 specifically the one that was used in this
 18 incident, was it outdated, that technology for
 19 venting?
 20 A. I wouldn't say it's necessarily outdated.
 21 It's certainly old technology.
 22 Q. Uh-huh.
 23 A. I believe that the American Petroleum
 24 Institute still endorses their use; but maybe as a
 25 result of March the 23rd maybe, you know,

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1 re-evaluating that.
 2 MR. WILLIAMS: Objection to the
 3 last part as nonresponsive.
 4 Q. (BY MR. WILLIAMS) What -- are you an
 5 expert on this area API 521 and guide for pressure
 6 relieving in depressuring systems?
 7 A. I am not an expert on that. I took
 8 advice from others on it.
 9 Q. Who wrote that section on the --
 10 regarding the API recommended practices 521 and
 11 the -- and your internal BP PSS Number 6?
 12 A. I wrote the words that appear there, but
 13 I consulted with others in developing that --
 14 Q. Is it true --
 15 A. -- text.
 16 Q. Is it true that BP's own PSS Number 6
 17 states that new blowdown stacks that discharge
 18 directly to the atmosphere are not permitted?
 19 A. PSS 6 was an Amoco heritage document that
 20 went through a number of revisions over the years,
 21 and I believe those words did appear in one of the
 22 revisions.
 23 Q. Was the latest revision 1984?
 24 A. I believe that may have been the latest
 25 revision that the investigation team was able to

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1 obtain.
 2 Q. Okay.
 3 A. I don't know if there is a later one.
 4 Q. Now, you document on page 109 of your
 5 report two opportunities that were missed to tie in
 6 to the flare system and eliminate the blowdown
 7 drum, correct?
 8 A. I am sorry. What page was that?
 9 Q. 109.
 10 A. 109. Okay. Two opportunities, yes.
 11 Q. Right. Two opportunities were missed by
 12 BP to tie in to a flare system and eliminate the
 13 blowdown drum, right?
 14 A. Yes.
 15 Q. And those were -- one was in 1995 and the
 16 other was in 2002, correct?
 17 A. That's correct.
 18 Q. And which one was the Clean Streams
 19 program?
 20 A. I am not sure. That may have been 2002.
 21 Q. The clean -- who killed the Clean Streams
 22 program?
 23 A. I have no idea.
 24 Q. Your investigation looked at the Clean
 25 Streams program or not?

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1 A. I certainly interviewed a few people in
 2 relation to the Clean Streams program, yes.
 3 Q. And the Clean Streams program, if it had
 4 gone through, would have eliminated this blowdown
 5 drum and tied in to the flare system, correct?
 6 A. That was not in the decision support
 7 package. That was not the scope of the project.
 8 The Clean Streams project would have removed the
 9 liquids that were drained to the blowdown -- F-20
 10 blowdown drum for maintenance purposes, but my
 11 understanding is that the scope of the Clean
 12 Streams project did not address the relief streams
 13 from either the raffinate splitter or other parts
 14 of the ISOM unit.
 15 Q. Well, who told you that?
 16 A. I interviewed at one or two of the
 17 engineers involved with the Clean Streams project.
 18 Q. Who?
 19 A. I believe there was -- I think it was
 20 David Harlan or Dave Harlan, Kevin -- Kevin --
 21 Kevin Zinke; and there were one or two others whose
 22 names I can't remember.
 23 Q. Did they inform you that the Clean
 24 Streams program was killed by management?
 25 A. No.

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1 Q. Did you ever ask "Why didn't the Clean
2 Streams program go forward?"
3 A. My understanding was that they had
4 purchased a new separator for draining those
5 maintenance fluids into. I wasn't aware that the
6 project had been canceled, or I think you said
7 killed.
8 MR. WILLIAMS: Objection,
9 nonresponsive.
10 Q. (BY MR. WILLIAMS) Had there been a
11 recommendation that the relief system in the ISOM
12 unit be reviewed and that this had been ignored?
13 A. I believe that a HAZOP made a
14 recommendation, I want to say 2003 but I would need
15 to check my facts on that. A HAZOP possibly in
16 2003 made a recommendation that the relief system
17 in a capacity should be evaluated.
18 Q. And as of the time of this fire and
19 explosion, that recommendation had been ignored,
20 correct?
21 A. My understanding is that as of the time
22 of March the 23rd, that work had not been
23 completed.
24 Q. When you say "not completed," there had
25 been no action taken to even start it, right?

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1 A. I couldn't find any documentation. I
2 don't know for a fact that the work had not
3 started. I did not -- I didn't interview everybody
4 in the Texas City refinery.
5 Q. Did your quote, what you call, "One of
6 the most historically thorough investigations,"
7 reveal any evidence, written or interview wise,
8 that showed that any attempt had been to start this
9 review that had been requested -- recommended as a
10 result of the 2003 HAZOP.
11 A. I couldn't find any documentation on a
12 relief system study.
13 Q. Or evidence of any kind, true?
14 A. The investigation was conducted in two
15 halves and I led the half of the time that looked
16 at the last, sort of, 24 hours leading up to the
17 incident and so that was the main concentration of
18 my efforts on the investigation.
19 The other half of the
20 investigation team looked at the earlier history of
21 the unit; and so, you know, from my knowledge I --
22 there was no documentation of a relief system
23 study. They may have -- they may know of -- you
24 know, have had discussions with people but there is
25 certainly no documentation to my knowledge exists.

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1 MR. WILLIAMS: Objection,
2 nonresponsive.
3 Q. (BY MR. WILLIAMS) So I can be clear,
4 with regard to the recommendation in the
5 previous -- previously made in 2003 that there be
6 an investigation or a study of the relief system,
7 you personally, in your investigation, found no
8 evidence that that had started?
9 A. I personally found no evidence
10 surrounding that recommendation, but I was not
11 party to all of the discussions surrounding that.
12 MR. WILLIAMS: Object to the last
13 part, nonresponsive.
14 Q. (BY MR. WILLIAMS) Who did -- led the
15 investigation with regard to previous incidents?
16 A. That would have been the other half of
17 the investigation team. That --
18 Q. Who would that have been?
19 A. That would have been Tim Holt, Greg Crum,
20 Joe Dekelita, Ollie Niederhofer, I think that
21 was -- there were four of them, conducted that.
22 And then I subsequently found some evidence of
23 other incidents which got added to the list in the
24 report.
25 Q. Is it true at the Texas City refinery

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1 that process safety did not appear to be a
2 priority?
3 A. It was not a priority in so much as the
4 main focus appeared to be in occupational safety
5 and environmental performance.
6 Q. So the answer is "yes"?
7 A. The main focus of the leadership team was
8 on occupational safety and environmental
9 performance and not on process safety.
10 Q. Did you find any evidence that there was
11 any plans to eliminate the use of the blowdown
12 stack on the ISOM unit?
13 A. The only -- the only thing that I was
14 aware of was that although it wasn't within the
15 scope of the Clean Streams project, the Clean
16 Streams project did talk about whether that might
17 be added to their scope. So the Clean Streams
18 project was to eliminate the maintenance streams
19 that would drain to the blowdown drum, and they did
20 briefly discuss whether or not they should add to
21 that scope and include the relief streams. That
22 was the only -- the only evidence that I was aware
23 of relating to complete removal of the blowdown
24 drum.
25 Q. Well, let's look at your conclusion on

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1 page 143 and see if you said something --
 2 A. Right.
 3 Q. -- different in your report.
 4 So if we look at that page, the
 5 very last paragraph, the sentence says, quote,
 6 "There were no plans to eliminate use of the
 7 blowdown stack on the ISOM unit," close quote.
 8 Is that what your investigation
 9 put in as a factual finding?
 10 A. That's correct. There were no actual
 11 plans for its removal.
 12 Q. And if we go on the top of that page
 13 under the first full paragraph we see there is a
 14 general lack of emphasis on operations and an
 15 erosion of process safety knowledge. Do you see
 16 that finding up there?
 17 A. Yeah, that was a general conclusion
 18 relating to communications within the site.
 19 Q. Right, who was responsible for the fact
 20 that there was this lack of emphasis on operations
 21 and this erosion of process safety knowledge?
 22 Who's responsible?
 23 A. Well, once again, I only investigated the
 24 incident on the ISOM unit. So any of the comments
 25 here relate to the ISOM unit, and I only

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1 interviewed members of and investigated sort of
 2 line management of the ISOM unit.
 3 Q. A name. Can you provide us a name?
 4 A. It would be anyone within the sort of
 5 line management of the ISOM unit, you know, from
 6 the site leadership down to the shop floor.
 7 Q. And all the way up to the -- even above
 8 site leadership if site leadership failed, right?
 9 A. I only investigated site leadership down
 10 to the shop floor.
 11 Q. Let's look at the last full paragraph on
 12 page 143. It says, quote, "There was no
 13 comprehensive and consistent business plans focused
 14 on the systematic reduction of process risk."
 15 That was one of your factual
 16 findings?
 17 A. I am sorry. Where was this?
 18 Q. Page 143, last full paragraph, first
 19 sentence.
 20 A. That's right. I think I previously
 21 stated that the focus was on occupational safety
 22 and environmental performance and not on process
 23 safety.
 24 Q. And who is accountable for that failure
 25 to focus on process safety?

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1 A. Once again, it would be the -- the line
 2 management on the ISOM unit from site leadership
 3 down to the operators and technicians.
 4 Q. You know, in fact, we address leadership
 5 or you address leadership on page 153, don't you?
 6 A. Yes.
 7 Q. In fact, the -- when we get to HSSE,
 8 that's the safety department, your finding was that
 9 the leadership team appeared relatively small given
 10 the size of this refinery?
 11 A. Yes, that's correct.
 12 Q. It goes on to say that -- that they did
 13 not have senior visibility in the areas of HSSE,
 14 that's health, security, safety and environment;
 15 PSM, process safety management; and support
 16 functions.
 17 My question is: When you say,
 18 "There is no senior visibility," what do you mean
 19 by "senior visibility"?
 20 A. That would be members of the sort of
 21 leadership team on the site.
 22 Q. Did you find that the working
 23 relationship between leadership, the workers and
 24 the employees and contractors were poor?
 25 A. Yes.

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1 MR. WILLIAMS: Change tapes.
 2 THE VIDEOGRAPHER: Off the record
 3 at 3:49 p.m., ending Tape 4.
 4 (Recess taken.)
 5 THE VIDEOGRAPHER: On the record,
 6 3:50 p.m., beginning Tape 5.
 7 Q. (BY MR. WILLIAMS) Is it true that at the
 8 Texas City refinery leadership had a poor
 9 understanding of risk and process safety in
 10 general?
 11 A. I only interviewed the line management
 12 for the ISOM unit. So in respect of the line
 13 management for the ISOM unit on the site, then
 14 there was a poor understanding of process safety,
 15 and they appeared to tolerate a level of risk that
 16 I personally thought -- that I personally would not
 17 tolerate.
 18 Q. Did you find that the overall approach to
 19 process safety was one of minimum compliance with
 20 regulatory requirements?
 21 A. Some of the practices and systems within
 22 the refinery gave the impression of being somewhat
 23 of a minimum approach. You know, enough to meet
 24 the intent of the -- to meet the letter of the
 25 regulation for PSM.

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1 Q. But that was it?
 2 A. That was, you know, just to meet the
 3 regulation.
 4 Q. All right. Who was responsible for the
 5 fact that there was a poor understanding of process
 6 safety and that they were just meeting the minimum
 7 level of compliance?
 8 A. I don't know who is responsible. I am
 9 not -- I am not really that familiar with the
 10 refining and marketing organization.
 11 Q. How much time did you spend in
 12 preparation for your deposition?
 13 A. Two or three days.
 14 Q. Which is it?
 15 A. Well, I spent nearly two days this week
 16 and the best part of a day a couple of weeks ago.
 17 Q. So you have spent three days with the
 18 lawyers preparing for your deposition today?
 19 A. I have spent between two and three days.
 20 Q. What documents did you review in
 21 preparation for your testimony?
 22 A. I reviewed the main body of the final
 23 investigation report.
 24 Q. That's it?
 25 A. Yes.

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1 Q. No other documents?
 2 A. No.
 3 Q. Did you read any other depositions or
 4 have them read to you?
 5 A. I had some depositions read to me. Well,
 6 let's say I had extracts read to me.
 7 Q. Okay. What extracts?
 8 A. I think I had extracts from the
 9 turnaround superintendent, and I think that was it.
 10 I think it was -- I don't -- I don't recall any
 11 other statements from witnesses who were
 12 interviewed.
 13 Q. What was the subject matter of this that
 14 was read to you from the turnaround superintendent?
 15 A. I think it related to the trailer siting.
 16 Q. Do you think management deserves a
 17 passing grade for what occurred on March 23, 2005
 18 at the Texas City refinery?
 19 A. This would be my opinion, my speculation;
 20 but I was disappointed with the performance of the
 21 line management on the ISOM unit on March the 23rd.
 22 Q. Well, let's be specific. Did the
 23 management at the Texas City plant deserve a
 24 passing grade for what occurred on March 23?
 25 A. In Mike Broadribb's opinion, they

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1 wouldn't -- the line management on the ISOM unit on
 2 March the 23rd would not have received a pass
 3 grade.
 4 Q. The Chemical Safety Board, what was your
 5 relationship or interaction with them? Did you
 6 meet with them, talk with them, correspond with
 7 them, what?
 8 A. I had a number of various contacts with
 9 the Chemical Safety Board during the course of the
 10 investigation. Primarily it was one of sharing
 11 information such that we all had a complete and
 12 common understanding of the facts.
 13 Q. Who did you communicate with there?
 14 A. During the investigation, primarily Don
 15 Holstrom as the lead investigator; but I also spoke
 16 to some of his team.
 17 Q. How about OSHA? Did you have any
 18 communication with OSHA and its investigators?
 19 A. I met with them on one or two occasions
 20 and shared information with them also.
 21 Q. Have you met with the EPA or been
 22 interviewed by the FBI?
 23 A. No.
 24 Q. Have you met with or been interviewed or
 25 communicated with the Baker panel?

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1 A. No.
 2 Q. What's the purpose of this Baker panel?
 3 A. I have seen the recommendation from the
 4 Chemical Safety Board, but that's all I know.
 5 Q. Were you involved in -- well, let me go
 6 back.
 7 What is the Common Cause Report?
 8 A. The Common Cause Report is a report for
 9 the loss adjuster to share with the insurance
 10 companies for -- which is purely to do with
 11 property damage and possible -- I am not sure
 12 whether it includes business interaction, but
 13 primarily property damage.
 14 Q. Who drafted the Common Cause Report?
 15 A. I was one of the contributors. The other
 16 authors were Quentin Baker and Brian Johnson.
 17 Q. Where was it drafted?
 18 A. It was drafted in Geneva.
 19 Q. Why was it drafted in Geneva?
 20 A. That was the request of the loss
 21 adjuster.
 22 Q. Well, you didn't ever ask why you would
 23 go all the way to Geneva to draft your report?
 24 A. I made an inquiry, and I was told it was
 25 to ensure that there was no -- no disruption to the

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1 loss adjusters, you know, work. I don't know the
 2 full details.
 3 Q. Have you ever heard the concept that if
 4 you -- if a corporation does things in Switzerland
 5 that there's a -- they can keep it secret?
 6 A. I am not familiar.
 7 Q. Well, were these insurance adjusters,
 8 were they located in Geneva?
 9 A. Yes.
 10 Q. Did they help write this --
 11 A. The report was written in the loss
 12 adjuster's office.
 13 Q. Why didn't you just give them the -- your
 14 final Fatal Accident Investigation Report?
 15 A. That hadn't been written at that time.
 16 Q. How long is this Common Cause Report?
 17 A. I am not entirely sure. My contribution
 18 was -- was maybe ten pages, something of that
 19 order. And in actual fact, I used large pieces of
 20 the BP investigation report that I had written, or
 21 at least at that stage of the draft, that were
 22 relevant to the property damage aspect in terms
 23 of -- my understanding is all the loss adjuster
 24 wanted to know is what happened, what was the
 25 description of the incident, and, you know, how big

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1 was the -- the explosion.
 2 Q. Have you ever seen the common -- the
 3 final Common Cause Report?
 4 A. No.
 5 Q. There was a newspaper article that came
 6 out in the Houston Chronicle that blamed the
 7 operators for this fire and explosion. There are
 8 e-mails going to you when this came out, and there
 9 was some indication that people got it wrong.
 10 Explain that to me.
 11 A. Okay. I think that newspaper article was
 12 related to the time of the issue of the interim
 13 report, and there may have been statements made at
 14 the press conference that blamed the operators.
 15 And I seem to recall my involvement was just to
 16 inform people of what was the basis of the interim
 17 report, what did the interim report say, things of
 18 that nature.
 19 The interim report was not a
 20 complete investigation report, and I think it even
 21 said that the intention was to continue and to
 22 produce the final investigation report. The
 23 interim report was an attempt to -- to share some
 24 of the more obvious lessons from the incident as
 25 quickly as possible, not only within BP but within

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1 the industry; and for that reason, it stopped at a
 2 preliminary assessment of critical factors and had
 3 not -- at that time the -- the root cause analysis
 4 had not been even started, let alone completed.
 5 And, nevertheless, it was obvious to us that there
 6 were a few lessons or recommendations that could be
 7 made at that very early stage; and that's my, sort
 8 of, recollection.
 9 Q. Tell me about -- you gave a speech on
 10 lessons learned from the Grangemouth incident.
 11 Is that correct?
 12 A. I have, yes.
 13 Q. And what are the lessons learned from the
 14 Grangemouth incident?
 15 A. Which of the Grangemouth incidents?
 16 Q. Okay. How many are there?
 17 A. I have got to believe there has been --
 18 there has been a few over the years. I have -- I
 19 can recall speaking of two or three incidents on
 20 Grangemouth over the years.
 21 Q. Grangemouth is a plant run by BP?
 22 A. No, it's a plant run by INEOS, these
 23 days.
 24 Q. Did BP used to run it?
 25 A. Yes.

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1 Q. Up until when?
 2 A. I am not sure. I know the -- the sale of
 3 Grangemouth was discussed a year ago. I don't know
 4 when the sale was completed.
 5 Q. Okay. At the time of the incidents that
 6 you have lectured on about lessons learned from
 7 Grangemouth, it was operated by BP, correct?
 8 A. Yes.
 9 Q. And what are the incidents that you have
 10 lectured on and then we will get to what lessons
 11 are learned?
 12 A. There was the failure of a high voltage
 13 electrical cable that resulted in a power failure
 14 across the whole site.
 15 Q. This was May, June of 2000?
 16 A. It was 2000. I am not sure of the dates,
 17 but yes.
 18 Q. Okay.
 19 A. There was the failure of a steam line,
 20 which led to another shutdown of the site. And
 21 there was a fire on the cat cracker.
 22 Q. All of these events, these three events,
 23 occurred at the end of -- in the period at the end
 24 of May and the beginning of June in 2003, during
 25 about a two week period, correct?

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1 A. That's correct.
 2 Q. And the result was that BP pled guilty to
 3 criminal offenses in Scotland and was fined
 4 hundreds of thousands of pounds, correct?
 5 A. I am aware that there was a fine imposed.
 6 I don't know for a fact that BP pled guilty.
 7 Q. Well, did -- what was the fine imposed
 8 for? What did BP do wrong?
 9 A. I can't remember the citation now. I
 10 probably knew -- I knew the details a few years
 11 ago, but I don't recall the actual citation now.
 12 Q. Well, you've lectured on this. What were
 13 the lessons learned?
 14 A. The sort of lessons were around ensuring
 15 that process safety is treated like -- to the same
 16 priority as occupational safety, that there ought
 17 to be leading performance indicators to consider,
 18 to provide early warning of risk and that utility
 19 incidents can -- can have a major effect on safe
 20 operation of the process plant -- proper operation.
 21 Q. So --
 22 A. I think those were the three lessons.
 23 Q. So one of those lessons that was learned
 24 as a result of the late May, early June, 2000
 25 Grangemouth series of events was that there were

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1 flaws in the process safety emphasis or priorities
 2 at -- that BP had placed on it at the Grangemouth
 3 plant, right?
 4 A. That was one of the lessons, that greater
 5 emphasis should be placed on process safety.
 6 Q. And that's really one of the lessons that
 7 again is a result of the March 23, 2005 fire and
 8 explosion at Texas City, correct?
 9 A. Certainly line management on the ISOM
 10 unit did not have a good understanding of process
 11 safety.
 12 Q. Okay. Now --
 13 MR. WILLIAMS: Let's mark that as
 14 the next exhibit.
 15 (Exhibit Number 134 marked for
 16 identification.)
 17 Q. (BY MR. WILLIAMS) Exhibit 134 marked at
 18 the top left major -- says, "HSSE," says, "Major
 19 incident investigation report." Have you seen this
 20 before?
 21 A. I have seen a report from the health and
 22 safety executive on --
 23 Q. And this is --
 24 A. -- the May, June incidents. I am -- I
 25 assume it's the same one.

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1 Q. And it's put out by SEPA, which is the
 2 Scottish Environment Protection Agency, correct?
 3 A. Okay. No, I have not seen this one.
 4 Q. Okay.
 5 A. I have seen an equivalent report from the
 6 health and safety executive there.
 7 Q. Okay.
 8 A. Okay.
 9 Q. But this is put out -- this is an
 10 official document. It appears to be put out by the
 11 Scottish Environmental Protection Agency, correct?
 12 A. That's what it appears to be, yes.
 13 Q. Okay. And if we look over, I guess,
 14 page 1, 2, 3 -- it looks like page 9 of that stack
 15 of documents there.
 16 A. Okay.
 17 Q. Mine looks like this. Are we looking at
 18 the same page? It has "executive summary" and it's
 19 "direct and underlying causes"?
 20 A. Yes.
 21 Q. You see there in the third paragraph
 22 under "direct and underlying causes" it says,
 23 "Subsequent investigations revealed a number of
 24 weaknesses in the safety management systems on site
 25 over a period of time which contributed to the

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1 succession of events that result in the power
 2 distribution failure."
 3 Do you see that?
 4 A. Yes.
 5 Q. Now, if we take that same sentence,
 6 wouldn't it have applied to Texas City and say
 7 that, "Subsequent investigations," meaning your
 8 investigation, "revealed a number of weaknesses in
 9 the safety management systems on site over a period
 10 of time which contributed," and we just substitute
 11 in "which contributed to the fire and explosion of
 12 March 23," correct?
 13 A. The investigation of the ISOM unit
 14 identified a number of issues surrounding
 15 management systems at Texas City on March the 23rd.
 16 Q. So there had been weaknesses at the
 17 Grangemouth plant in May and June of 2000 and there
 18 were weaknesses at the Texas City plant on
 19 March 23, 2005, correct?
 20 A. Yes.
 21 Q. Look on page 3, excuse me, the first full
 22 paragraph there. And I -- there is a sentence down
 23 on the fourth line that says, "On 18th of January,
 24 2002, BP Chemicals Limited and BP Oil Grangemouth
 25 Refinery Limited were each convicted of an offense

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1 under the health and safety at work, et cetera, act
 2 1974. That BP Chemicals Limited were fined
 3 250,000 pounds and BP Oil Grangemouth Refinery
 4 Limited was fined 750,000 pounds, and that this
 5 reflected the seriousness that the courts hold for
 6 failings in controlling major hazard risk."
 7 Is that the fine that you were
 8 referring to that you were aware of?
 9 A. Yes, I wasn't -- I couldn't remember how
 10 much they were.
 11 Q. And then if we look down in the third
 12 paragraph there, the last sentence in the third
 13 paragraph it says, "It is also important that the
 14 chemical and oil refinery industries learn the
 15 lessons from these three incidents and take the
 16 necessary measures to minimize the number of major
 17 accidents."
 18 That goes back to that same theory
 19 we have been talking about, you learn from past
 20 mistakes not only yours and others in order to
 21 prevent mistakes in the future, correct?
 22 A. Yes.
 23 Q. Apparently there were management --
 24 weaknesses in the management system at Grangemouth
 25 in 2000 and there were weaknesses in the management

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1 system in Texas City in 2005, true?
 2 A. As related to the ISOM unit, yes. That's
 3 all I investigated.
 4 Q. And in spite of this conviction, two
 5 convictions of BP in 2002, in spite of those
 6 convictions, there were still weaknesses in the
 7 process safety systems at the Texas City refinery
 8 in 2005, true?
 9 MR. DENNY: Objection, form.
 10 A. There were weaknesses identified in
 11 management systems on the ISOM unit that led to the
 12 incident on March the 23rd, 2005.
 13 Q. (BY MR. WILLIAMS) And in fact,
 14 immediately before -- or in a short period of time
 15 before the 2005 fire and explosion at Texas City
 16 refinery, the Texas City refinery had put -- been
 17 put on a national watch list by OSHA and they were
 18 one of only two of all refineries in America that
 19 was put on this national watch list, correct?
 20 A. I am unaware of the watch list prior to
 21 March the 23rd.
 22 Q. Okay.
 23 MR. WILLIAMS: Let's take a break.
 24 THE VIDEOGRAPHER: Off the record,
 25 4:18 p.m.

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1 (Recess taken.)
 2 THE VIDEOGRAPHER: On the record,
 3 4:39 p.m., beginning Tape 6.
 4 Q. (BY MR. WILLIAMS) Did your investigation
 5 reveal anything about the alarm system, or did
 6 y'all investigate the alarm system? By that, I
 7 mean the one that warns people when there is a
 8 release or a plan of urgency.
 9 A. The evacuation alarm, the warbler alarm
 10 for the -- for the unit, we identified that alarm
 11 was not sounded at the time of the incident.
 12 Q. Did you investigate whether that alarm
 13 was in compliance with OSHA regs?
 14 A. No, I did not.
 15 Q. Were you aware that that alarm had --
 16 that the fire chief documented that that alarm was
 17 out of compliance, had calculated the OSHA fine and
 18 knew that it would be a willful and intentional
 19 violation and had been in existence for a number of
 20 years?
 21 A. I am not sure I understand. In what
 22 respect, that it was out of compliance?
 23 Q. Well, did your investigation reveal
 24 anything about the fact that there were e-mails and
 25 documents confirming that it was out of compliance?

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1 A. We did not.
 2 Q. Did your investigation reveal, sir, that
 3 the alarm system had -- was outdated, that it was
 4 intermittent in its -- in working, that it was
 5 subject to repeated failures and that there had
 6 been a request to update it that had been postponed
 7 for a number of years in spite of repeated
 8 requests?
 9 MR. DENNY: Objection, form.
 10 A. I am aware that there are several alarms.
 11 So I want to make sure that I know which one that
 12 we're -- we're talking about. There is a refinery
 13 general alarm and then there is a unit specific
 14 alarm on the ISOM unit. I was referring to the
 15 unit specific alarm on the ISOM unit.
 16 Q. (BY MR. WILLIAMS) I am speaking about
 17 the alarm system for the plant. Did your
 18 investigation, in any way, educate y'all or
 19 reveal -- or did you look into the fact that the
 20 plant's alarm system, by testimony of the fire
 21 chief, was outdated and that in spite of repeated
 22 requests to update it, those requests had been
 23 ignored and that it was documented that it was
 24 subject to repeated failures?
 25 MR. DENNY: Objection, form.

<p style="text-align: right;">Page 186</p> <p>1 A. My investigation team investigated the 2 unit specific alarm on the ISOM unit and that's all 3 that I investigated. 4 Q. (BY MR. WILLIAMS) Y'all stopped at that 5 point? 6 A. That's all that I investigated in respect 7 to the evacuation alarms as being relevant of the 8 incident on March the 23rd. 9 Q. Why were the people in the adjacent units 10 not advised that there was a startup going on? 11 A. I don't know why they weren't. I know 12 that a majority of them were not advised. 13 Q. What is C-O-W, control of work? What is 14 that? 15 A. Control of work is a general term that is 16 used for sort of safe work practices and more 17 specifically BP is -- has a new standard on control 18 of work that I believe was approved in January of 19 2006. 20 Q. Is it a safety standard, COW, C-O-W? 21 A. It is a BP standard for the way in which 22 work is -- you know, should be performed within the 23 company in the future; and I believe it was 24 approved in January, 2006. 25 Q. Had there been people complaining about</p>	<p style="text-align: right;">Page 188</p> <p>1 to the refining and marketing representative who 2 she should have been, if you like communicating 3 with -- in regard to that standard rather than 4 myself as I represented a different business 5 segment. 6 Q. By the way, did you personally sign the 7 final report? 8 A. No. 9 Q. Why not? 10 A. We determined that we didn't need to sign 11 it. 12 Q. Why is that? 13 A. We just didn't think that that added 14 any -- any value to the final report, particularly 15 when it was going to be issued electronically. I 16 certainly communicated with all of the team members 17 to make sure that they were supportive of the 18 content of the final report and then I gave it to 19 John Mogford who formally approved and issued it. 20 (Exhibit Number 135 marked for 21 identification.) 22 Q. (BY MR. WILLIAMS) Exhibit 135 in the 23 upper left-hand corner says, "Evidence building 24 blocks." Are you familiar with this document? 25 A. Yes, this looks like it was the -- this</p>
<p style="text-align: right;">Page 187</p> <p>1 the fact that it had not been approved previously? 2 A. It was a brand-new standard that was 3 written in 2005, maybe towards -- it started -- its 4 development started towards the end of 2004 and so 5 it is a group wide standard that applies to 6 exploration of production, refining and marketing, 7 shipping, gas power and renewable businesses within 8 BP and so it has been a huge consensus exercised to 9 get everyone's agreement to the final wording of 10 the document. And I believe, as I said, it was -- 11 it was approved for issue in January of this year. 12 Q. Did you work on that project? 13 A. I was the exploration and production 14 representative on that project. 15 Q. And Kathleen Lucas e-mailed you and asked 16 if there was any updates for timing on this 17 standard. It said, "Has the ISOM incident driven 18 any desire by the top of the house to push this 19 along any faster?" 20 Was there a perception that people 21 had been dragging their feet on bringing this into 22 existence? 23 A. I don't believe there was a perception. 24 There may have been. I don't know. But I am not 25 aware of one, and I think I may have referred her</p>	<p style="text-align: right;">Page 189</p> <p>1 looks like it was the work of the other half of the 2 investigation team. As I said, we split the team 3 into two halves. I led the team that was -- sub 4 group that was looking at the last 24 hours prior 5 to the incident and this looks like the evidence 6 building blocks of the group that looked at the 7 previous history of the raffinate splitter and F-20 8 blowdown drum. 9 Q. What does it mean in the left-hand column 10 "BB number"? 11 A. Building block number. 12 Q. What does that refer to? 13 A. Just the item number. It doesn't have 14 any other relevance. 15 Q. Well, why would some have F and some have 16 N and some have P and some have D? Do you know 17 that code, or there are some with a T? 18 A. I am -- I don't know what that code is. 19 They obviously subdivided their work in -- into a 20 number of groups. That's what -- that's what I 21 would conclude. 22 Q. Who would be the most knowledgeable 23 person concerning this building blocks document? 24 A. I think any of the members of the other 25 half of the team, so that would be Tim Holt, Greg</p>

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1 Crum, Ollie Niederhofer, Joe Dekelita.
 2 Q. I can't -- it's hard to read because it's
 3 got this black background. Why was that? Was it
 4 in the form of some kind of a PowerPoint, or was it
 5 on some weird kind of paper?
 6 A. I believe that it was a -- it may have
 7 been an Excel spreadsheet.
 8 Q. Okay. Who is Brad Smolen?
 9 A. Brad Smolen is the head of discipline for
 10 health, safety and environment in exploration and
 11 production business stream.
 12 Q. Is he your boss?
 13 A. No.
 14 Q. How does he relate to your management
 15 structure? Above you, below you, parallel?
 16 A. He is sort of in a parallel organization.
 17 Q. Okay.
 18 (Exhibit Number 136 marked for
 19 identification.)
 20 Q. (BY MR. WILLIAMS) Exhibit 136 is an
 21 e-mail with an attachment and on the attachment it
 22 says, "Texas City Investigation NCSPU Review."
 23 What does NC -- I guess it stands
 24 for North Sea SPU review. What is that?
 25 A. That is one of our strategic performance

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1 units in exploration and production. They operate
 2 offshore oil and gas production in the North Sea.
 3 Q. So who drafted this document that is --
 4 it says, "Texas City Investigation North Sea SPU
 5 Review"?
 6 A. It -- I don't know who drafted it, but it
 7 was sent to me by Gordon McCloud.
 8 Q. And who is Gordon McCloud?
 9 A. He is a -- a safety advisor in the North
 10 Sea.
 11 Q. So why did he send it to you?
 12 A. My recollection is that he put this
 13 together as a -- a sort of graphical presentation
 14 of what he read in the interim report on the Texas
 15 City incident, and I think it was his attempt to
 16 share some of the early lessons from Texas City
 17 with the North Sea operations.
 18 Q. Did you have anything to do with drafting
 19 this report, or did you have any -- give him any
 20 feedback or criticisms correcting it in any way?
 21 A. I haven't. I told -- I think I may have
 22 told him that once I was, sort of, finished with
 23 the investigation and the immediate, sort of,
 24 follow up, that I would probably get around to
 25 reviewing it in greater detail; and I might even be

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1 able to use some of it myself in future sharing of
 2 lessons learned within BP.
 3 (Exhibit Number 137 marked for
 4 identification.)
 5 Q. (BY MR. WILLIAMS) Exhibit 137, it says,
 6 "BP confidential, for internal use only."
 7 Was this a PowerPoint?
 8 A. It looks like it, yes.
 9 Q. Have you seen this before?
 10 A. I think I had sight of it early on last
 11 year.
 12 Q. Do you know who drafted it?
 13 A. No.
 14 Q. Do you know how it was used?
 15 A. I -- my understanding is; and I don't --
 16 and this is speculation on my part, is that this
 17 was shared with BP leadership to give them some of
 18 the, you know, feedback of what happened at Texas
 19 City.
 20 Q. Do you know when this was shared with BP
 21 leadership?
 22 A. I think it was sometime around the middle
 23 of last year, but I don't know precisely.
 24 Q. And by "BP leadership" you mean who?
 25 A. I mean, probably, other site leaders

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1 in -- in BP.
 2 Q. Like other chemical and refinery plants
 3 around the country?
 4 A. Or even exploration and production site
 5 leaders.
 6 Q. Okay. Do you see anywhere in this
 7 document that was shared with the team leaders
 8 where it indicated, as you did in your final
 9 report, that there was a breakdown in failures in
 10 the management systems with regard to process
 11 safety?
 12 A. I don't see it, but's that doesn't
 13 surprise me, as I think this predates the
 14 publication of the final report.
 15 Q. In fact -- well, do you know of anything
 16 where it has been communicated to other team -- or
 17 to team leaders that one of the root causes was
 18 this issue of failure to -- failure to appreciate
 19 and recognize the significant risk and failure to
 20 take action on significant risk?
 21 A. I am not a group leader, so I wouldn't
 22 know what's been shared with them, other than the
 23 actual meetings that I personally have been
 24 involved in.
 25 Q. Well, have you seen any BP document other

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1 than the final report that's been distributed to
 2 the BP employees around the world so that this
 3 doesn't happen again?
 4 A. I have seen a message from Ross Pillari
 5 to employees. There may have been one from John
 6 Browne as well to employees. I don't remember.
 7 Q. Well, did either of those managers --
 8 those messages from top management from Ross
 9 Pillari or Lord Browne address the flaws in the
 10 process management system?
 11 A. I quite honestly can't remember the
 12 detail of those messages.
 13 Q. Were those messages written, or were
 14 those a TV show or what?
 15 A. I think there was an e-mail to all
 16 employees.
 17 Q. Do you know when?
 18 A. Well, I -- I think that Ross Pillari
 19 sent -- sent something out that coincided with a
 20 publication of the final report. So that would
 21 have been November -- no, sorry, December.
 22 December, 2005.
 23 Q. Okay. And when did Lord Browne send out
 24 something?
 25 A. I don't -- I don't recall.

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1 Q. Did Ross Pillari's statement address the
 2 flaws in process safety management that existed?
 3 A. I can't remember the content of Ross
 4 Pillari's message now.
 5 Q. Are you aware of any mandatory
 6 requirements that people go and read the final
 7 report, or have there been any seminars held that
 8 you are aware of where people were called in to
 9 be -- to communicate to them the findings of the
 10 final report.
 11 A. There have been a number of
 12 presentations, which I personally have given.
 13 Those are the only ones that I am aware of, but I
 14 am sure there have been others.
 15 Q. Well, the ones that you are aware of have
 16 reached approximately how many people?
 17 A. The ones that I have been involved in, if
 18 you will, are still ongoing, but to date I have
 19 probably spoken to 200, 250, maybe 300 people.
 20 Q. And if we put that into perspective, the
 21 number of BP employees is what, a hundred thousand?
 22 A. I don't know.
 23 Q. Now, one of the -- you had an e-mail
 24 where there -- you were copied on an e-mail where
 25 there was -- the question was asked "What is the

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1 latest number of persons injured as a result of the
 2 March 23 incident?" And the response was that
 3 "Somewhere between 50 and a thousand. And we'll
 4 never have a good idea of who was injured."
 5 Now, is that the information that
 6 you were provided before you did the final report?
 7 A. No. I -- I did manage to get a copy or
 8 let's say a summary of the OSHA 300 log from Texas
 9 City, which is what I used to produce the sort of
 10 final numbers in the -- in the report.
 11 Q. Well, did you ignore this e-mail that
 12 said that there was between 50 and a thousand?
 13 A. No. I followed up to get a more precise,
 14 you know, measure.
 15 Q. Well, why is the OSHA log the precise
 16 measure?
 17 A. The OSHA log is a precise measure of the
 18 individuals who sought medical attention or first
 19 aid within the Texas City site, and I think I used
 20 the terminology of "over 170 individuals" as being
 21 harmed in recognition that some contractors within
 22 the site may have gone for medical attention
 23 outside of the site without going through the
 24 medical services within the Texas City site. And
 25 in recognition that maybe one or two of the general

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1 public also went directly to local medical
 2 providers.
 3 Q. So when you say that there were over 170
 4 injuries, the 170 just refers to the people who got
 5 treatment on site; and in reality, there could be
 6 hundreds or thousands of people that were injured
 7 that simply didn't fall in that category of seeking
 8 treatment on site, they went elsewhere?
 9 MR. DENNY: Objection, form.
 10 A. I have no basis for knowing how many
 11 people off site -- or sought medical attention off
 12 site.
 13 (Discussion off the record.)
 14 (Exhibit Number 138 marked for
 15 identification.)
 16 Q. (BY MR. WILLIAMS) Do you know what
 17 one -- Exhibit 138 is?
 18 A. No, I am not sure I know where this came
 19 from. It's not very legible.
 20 Q. Okay. The BP Texas City site had a
 21 process safety committee. Did you ever go through
 22 the minutes of that committee or make any
 23 determination as to whether it was an effective
 24 committee or ineffective?
 25 A. I personally did not go through the

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1 minutes of that committee.
 2 Q. Do you have any judgment as to whether it
 3 was effective or ineffective?
 4 A. I personally have no -- no basis for
 5 commenting one way or the other. I believe other
 6 people have views, but I have no basis.
 7 Q. Who would those other people be?
 8 A. I think some of the individuals who have
 9 been on the committee over the last few years.
 10 Q. Did anybody tell you or insinuate to you
 11 that it had been effective or ineffective?
 12 A. I am aware by, you know, from hearsay of
 13 differing opinions.
 14 Q. Okay. And who gave you the opinions, and
 15 what were they?
 16 A. I don't remember the individuals who
 17 particularly expressed certain views but I have
 18 heard opinions that the committee was, you know,
 19 had been somewhat bureaucratic at times but on
 20 other occasions had actually positively contributed
 21 to the safety practices within the site. So I had
 22 a mixture of views.
 23 Q. By the way, did you take any notes when
 24 people told you these things?
 25 A. I took some notes which were in the

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1 documentation that I turned in, but I didn't walk
 2 around with a notebook that I religiously wrote
 3 everything down in.
 4 Q. What does --
 5 A. Most of my efforts, as I think I told
 6 you, were on the -- the last 24 hours leading up to
 7 the incident and so I spent a lot of time
 8 interviewing operators and technicians involved in
 9 the ISOM unit and during those interviews I had a
 10 court reporter to take notes.
 11 Q. What is the Litwin report?
 12 A. I believe there was an engineering study
 13 done that was referred to in one of the HAZOPs and
 14 we never did manage to obtain a copy of that. We
 15 even went back to Litwin Engineering, but
 16 apparently they had been taken over by another
 17 company who didn't keep or archive some of the
 18 records.
 19 Q. What was the subject of the Litwin report
 20 that nobody could find?
 21 A. If my memory serves me correctly, that
 22 was related to relief -- relief valves, relief
 23 systems, capacity.
 24 Q. In the scope of work for Packer
 25 Engineering, I found a document that talked

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1 about -- that they did a 3-D virtual reality,
 2 360-degree high resolution digital photographs
 3 mapped to precise locations, which can be
 4 subsequently pan zoomed to review site artifact
 5 appearance and condition.
 6 Was that done?
 7 A. Yes, and I believe that I described that
 8 earlier as one of the -- part of the scope of work
 9 that I agreed with Packer Engineering.
 10 MR. WILLIAMS: I don't think we
 11 have that, but we will follow up in trying to get
 12 that from you guys. Or if you want to take a
 13 couple of minutes and go get it out of your office
 14 now, I don't mind.
 15 MR. DENNY: Why don't you follow
 16 up, and I will ask the appropriate people here,
 17 okay?
 18 THE WITNESS: I certainly turned
 19 that into -- into evidence.
 20 (Discussion off the record.)
 21 Q. (BY MR. WILLIAMS) What is the G-H-S-E-R
 22 2004 audit?
 23 A. G-H-S-E-R stands for "Getting Health,
 24 Safety and Environmental Right." We refer to it as
 25 GHSER for short. GHSER is if you -- like the

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1 framework of BP's health, safety and environmental
 2 management system in that it encompasses -- I think
 3 it's about 94, 95 expectations that most chemical
 4 process plants would be expected to -- to have in
 5 place. And so an audit was conducted, I believe,
 6 internally within Texas City site as to how they
 7 complied with those expectations.
 8 (Exhibit Number 139 marked for
 9 identification.)
 10 Q. (BY MR. WILLIAMS) Exhibit 139 refers to
 11 this GHSER audit of 2004, correct?
 12 A. It appears to, yes.
 13 Q. And do you know who offered this
 14 document?
 15 A. I do not.
 16 Q. It seems to be some kind of synopsis of
 17 it. But it -- the areas that I am interested in
 18 are: If you go down to gaps that were identified
 19 in the 2004 GHSER, it says Number 2, "No formal
 20 system exists for identifying high level risk at
 21 the site level."
 22 Is that part of the GHSER 2004
 23 audit, sir?
 24 A. That's what it says. I would have to
 25 question that statement in that the major accident

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1 risk study that was conducted did address the top
 2 80 risks on the site, so that would appear to be in
 3 conflict with this statement.
 4 MR. WILLIAMS: Okay. Objection,
 5 nonresponsive.
 6 Q. (BY MR. WILLIAMS) But the GHSER audit,
 7 do you know whether the GHSER audit found, as
 8 stated on this Exhibit 139, that there was no
 9 formal system existing for identifying high level
 10 risk at the site level?
 11 A. This document appears to suggest that
 12 that is what the GHSER audit found.
 13 Q. Okay. Did you and your team review and
 14 study the GHSER audit?
 15 A. The other half of the investigation team
 16 that looked at the previous history of the
 17 raffinate splitter and blowdown drum certainly
 18 looked at all of the recent audits that were
 19 relevant, and I believe this was included. This
 20 audit would have been included as one of those
 21 audits that they looked at.
 22 Q. Okay. The other half of the team would
 23 be more knowledgeable about their review of the
 24 GHSER audit?
 25 A. Yes.

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1 Q. Okay. Did you live in Alaska at one
 2 point in time?
 3 A. I did indeed.
 4 Q. Okay. And went through a divorce in
 5 Alaska?
 6 A. I did.
 7 Q. Amazing what you can find out about. I
 8 am not going to go into that. I have gone through
 9 a divorce myself, so we will leave those things
 10 behind us.
 11 (Exhibit Number 140 marked for
 12 identification.)
 13 Q. (BY MR. WILLIAMS) Exhibit 140 seems to
 14 be a draft of talking points and has high level
 15 messages. Are you familiar with that document?
 16 A. I -- I have seen a document of talking
 17 points. This is a draft and I am not -- I am not
 18 sure whether I saw this draft, but I have seen
 19 something that's similar to this anyway.
 20 Q. Why was -- why were you provided talking
 21 points?
 22 A. Having conducted the investigation to
 23 establish the facts of what happened and the root
 24 causes related to the incident, I was asked, from
 25 time to time, to comment on a number of things to

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1 ensure the correct facts were being, if you like,
 2 communicated or disseminated for whatever purpose
 3 that was for.
 4 Q. Okay. As part of the Clean Streams
 5 investigation, did you interview Kevin Zinke?
 6 A. I seem to remember interviewing Kevin
 7 Zinke, yes.
 8 Q. And how about David Harlan?
 9 A. Yes.
 10 Q. And do you know why Harlan was --
 11 initially refused to be interviewed and why he was
 12 decidedly unhelpful?
 13 A. I am not sure that he was able to ever
 14 properly explain it to me, but I persisted and
 15 persuaded him to be interviewed. I think he was
 16 uncomfortable in participating in an investigation
 17 when possibly his name could be mentioned in the
 18 media.
 19 I think it was unfortunate that
 20 some documents related to the investigation, I
 21 believe, were released to the media in the middle
 22 of our investigation and that made some of the
 23 witnesses somewhat reluctant to participate.
 24 (Exhibit Number 141 marked for
 25 identification.)

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1 Q. (BY MR. WILLIAMS) Exhibit 141, is that
 2 an e-mail from vice president CJ Warner, Cynthia J.
 3 Warner who is vice president over in London that
 4 she sent to John Mogford that he then forwarded on
 5 to you?
 6 A. Yes, that's what it appears to be, and I
 7 think it's the e-mail I referred to earlier today.
 8 Q. And she complained in there that she was
 9 disappointed that almost none of her input seems to
 10 have been included?
 11 A. That's correct. That's because I didn't
 12 agree with it.
 13 Q. It appears that she tried to put some
 14 pressure on the investigative team; and if you look
 15 on the second page at the top it says, "We're
 16 getting way ahead of ourselves when we include --
 17 conclude that the appalling lack of focus on the
 18 blowdown system as a critical safety system that
 19 needed to be focused upon, maintained and
 20 eventually phased out is a sign that our overall
 21 focus on process safety is a shamable." She wanted
 22 you to, basically, back down on, as I understand
 23 that, or someone to back down on criticizing
 24 process safety in the final report, true?
 25 MR. DENNY: Objection, form.

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1 A. That could be one interpretation of -- of
 2 her words here.
 3 Q. (BY MR. WILLIAMS) Okay.
 4 A. What I would say is that I don't think I
 5 took any of her comments terribly seriously, and I
 6 don't think the final report reflects any influence
 7 on the part of her.
 8 Q. But this is what you referred to as, I
 9 guess, some subtle influence or maybe not so subtle
 10 because she is VP in London of safety, true?
 11 A. That is correct, and I think I said
 12 earlier that, you know, I have been around long
 13 enough that I don't think it's necessary for me to
 14 do anything that I don't agree with.
 15 Q. How long have you been with BP?
 16 A. Now this is getting personal.
 17 This is my 38th year.
 18 Q. Out of college, have you worked for
 19 anyone else in your adult life, other than BP?
 20 A. No.
 21 Q. You have a lot at stake with BP, I take
 22 it. They have been your -- they have provided your
 23 income for you and your family for 38 years?
 24 A. They have.
 25 Q. Hope to stay there until you retire?

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1 A. I hope so.
 2 Q. You make a very decent living working for
 3 them, don't you?
 4 A. I think so. You know, my wife seems to
 5 spend everything that I earn; but I think we all
 6 have that problem.
 7 MR. WILLIAMS: Let me see if
 8 anybody else has some other questions for a moment
 9 and I will see if somebody else wants to ask
 10 questions and I will fill in the blanks later if I
 11 need to.
 12 * * *
 13 EXAMINATION
 14 Q. (BY MR. BOND) Are you doing okay? Do
 15 you need to take a break or anything before we
 16 start?
 17 A. I am fine.
 18 Q. How are you doing today, sir?
 19 A. I have had better days.
 20 Q. I bet you have. My name is Trent Bond.
 21 I represent the mother of Ryan Rodriguez and the
 22 estate of Ryan Rodriguez. And the first thing I
 23 want to show you is Exhibit 126 and ask: Can you
 24 identify it for me?
 25 A. It appears to be an investigation report

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1 on the ULC unit dating back to August the 5th,
 2 2004. I have never seen this document before.
 3 Q. Okay. Could you tell me where that is in
 4 relation to the ISOM?
 5 A. The ULC plant, I think, is situated
 6 directly north of the ISOM unit.
 7 Q. Relate --
 8 A. At Texas City.
 9 Q. Relatively speaking, pretty close to the
 10 ISOM, correct, sir?
 11 A. Yes.
 12 Q. The trailers would be kind of situated,
 13 not right in between but pretty close to them,
 14 correct, sir?
 15 A. On March the 23rd, there were some
 16 maintenance trailers for the ULC plant that were
 17 situated on the ULC plant and there was some that
 18 were situated between the ISOM and the NDU unit.
 19 Q. What about the JE Merit, sir?
 20 A. That would have been sited between the
 21 ISOM and the NDU unit.
 22 Q. And the NDU is the unit we are talking
 23 about there, correct, sir?
 24 I am sorry. We are talking about
 25 the ultracracker unit.

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1 A. The -- the ultracracker.
 2 Q. But that is pretty close to the trailer
 3 site, right?
 4 MR. DENNY: Objection, form.
 5 A. It is directly north of the ISOM unit.
 6 Q. (BY MR. BOND) I am trying to figure out
 7 distance here for relation to the jury how close
 8 would the trailer, the JE Merit trailer would have
 9 been to the ultracracker, as a -- as a crow flies.
 10 A. I would think a hundred, a hundred feet
 11 due north.
 12 Q. Okay.
 13 A. Something of that order. That's a little
 14 bit of speculation but --
 15 Q. I am not going to hold you to it. I am
 16 not going to go out count it.
 17 Now could you tell -- you never
 18 have seen this investigation report?
 19 A. No.
 20 Q. All right. So when you did your
 21 investigation about the MOC and the trailer siting,
 22 you didn't -- you weren't aware of this accident?
 23 A. No.
 24 Q. Or incident.
 25 Can you tell from looking at it

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1 what it is?
 2 A. Only by reading the title.
 3 Q. All right. So you weren't aware of a
 4 hydrocarbon release at the ultracracker, I guess,
 5 just a month before the trailers were designated to
 6 be sited --
 7 A. No.
 8 Q. -- close to the ISOM?
 9 A. No.
 10 Q. Okay. Don't you think that is kind of
 11 important when you are doing your investigation
 12 when you are talking about process safety
 13 management to know about other, I guess, releases
 14 to the atmosphere of hydrocarbon?
 15 MR. DENNY: Objection, form.
 16 A. I investigated or the investigation that
 17 I was involved in investigated the circumstances
 18 around the incident on the ISOM unit on March the
 19 23rd, and I certainly was aware of other incidents
 20 that occurred on the raffinate splitter and on the
 21 F-20 blowdown drum.
 22 Q. (BY MR. BOND) Why don't you take a
 23 second to read the summary of the incident so you
 24 kind of have an idea what we are talking about
 25 here.

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1 (Discussion off the record.)
 2 A. Okay.
 3 Q. (BY MR. BOND) Could you tell from that
 4 summary what happened at the ultracracker in
 5 August, 2004?
 6 A. It's not very detailed, but it appears
 7 that 20 barrels of fluid went into -- or went from
 8 the blowdown vessel into the sewer system.
 9 Q. All right. And the -- and the blowdown
 10 vessel is similar to the one at the F-20, correct,
 11 sir?
 12 A. I don't know that to be a fact.
 13 Q. Okay. But when you say "blowdown
 14 vessel," blowdown vessels are -- could you tell the
 15 jury what a blowdown vessel is rather than me doing
 16 it?
 17 A. I can tell you what the F-20 blowdown
 18 vessel does. I can't tell what you other blowdown
 19 vessels at Texas City do, but the F-20 blowdown
 20 drum and stack on the ISOM unit is used for
 21 draining down the process unit for maintenance
 22 purposes and the hydrocarbons are drained into the
 23 blowdown vessel and then pumped from there into,
 24 you know, a slops recovery system of some sort.
 25 And there are also three relief valve systems that

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1 also discharge from the ISOM unit, one of which is
 2 from the raffinate splitter. Those also discharge
 3 into the blowdown drum under emergency
 4 circumstances where the relief valves open.
 5 Q. And I am going to show you Exhibit
 6 Number 127, which is a series of documents; but I
 7 am just going to kind of take you to Bates stamp
 8 Number 367140. And it says, "contributing factor"
 9 right here and it's going to say, "system causes."
 10 I want you to kind of read that to
 11 yourself, sir.
 12 A. (Examines document.)
 13 Q. Do you get that?
 14 A. Okay.
 15 Q. Were you able to read that, sir?
 16 A. Yes.
 17 Q. Okay. So I believe he documents -- this
 18 is a draft that was taken out in the final report,
 19 but the person doing this incident investigation
 20 documents inadequate leadership, inadequate safety
 21 promotion which while not exactly the same as your
 22 conclusions in your final report are remarkably
 23 similar, correct, sir?
 24 MR. DENNY: Objection, form.
 25 A. What I read was that the system causes

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1 were around non-reporting of an incident.
 2 Q. (BY MR. BOND) What is up here, 8.2?
 3 What does that say, sir? The first two words?
 4 A. "Inadequate leadership," which is then
 5 qualified as "inadequate safety promotion."
 6 Q. All right. Now, sir, we have a blowdown
 7 stack that then releases hydrocarbon into the
 8 atmosphere a month prior to the MOC and you didn't
 9 know about -- is this news to you today, sir?
 10 A. Yes.
 11 Q. Okay.
 12 A. I have not seen this report.
 13 Q. So this is brand-new? You haven't even
 14 seen it before?
 15 A. I have not seen this before. You need to
 16 understand I work in exploration and production,
 17 which is a totally different business stream to
 18 refining and marketing.
 19 Q. You spent --
 20 A. But I was asked to investigate the
 21 circumstances around the March the 23rd incident on
 22 the ISOM unit, so I devoted my attention to
 23 understanding the facts that occurred on March the
 24 23rd.
 25 Q. I understand that. Now, but one of those

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1 facts was the trailer siting, correct, sir?
 2 A. That's correct.
 3 Q. Okay. And that's pretty important in the
 4 death of Mr. Rodriguez, correct, sir?
 5 MR. DENNY: Objection, form.
 6 A. I investigated the circumstances
 7 surrounding the facility siting of the -- of the
 8 temporary accommodation.
 9 Q. (BY MR. BOND) And that's pretty
 10 important, correct, sir?
 11 A. It was a critical factor within the
 12 investigation.
 13 Q. It was a critical factor in 15 deaths,
 14 correct, sir?
 15 MR. DENNY: Objection, form.
 16 A. There were a number of critical factors
 17 and a number of opportunities to prevent the final
 18 outcome.
 19 Q. (BY MR. BOND) It was one of the critical
 20 factors in 15 deaths, correct, sir, the trailer
 21 siting?
 22 A. It was one of the critical factors in the
 23 incident that occurred on March the 23rd.
 24 Q. Okay. Now, the trailer siting, that
 25 would be considered process safety management or is

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1 that something else?
 2 A. It is one tiny piece of process safety
 3 management.
 4 Q. All right. But a very important piece, I
 5 guess, when you put 15 people next to a blowdown
 6 stack, correct, sir?
 7 MR. DENNY: Objection, form.
 8 A. Facility siting is an important
 9 consideration in the conduct of process hazards
 10 analyses to identify hazards related to the siting
 11 of blowdowns.
 12 Q. (BY MR. BOND) And obviously from this
 13 incident report, British Petroleum management was
 14 aware of at least the release to the atmosphere of
 15 hydrocarbons at the ultracracker right next to the
 16 ISOM, correct, sir?
 17 MR. DENNY: Objection, form.
 18 A. I have not seen that document before. So
 19 I don't know who has seen and is aware of the
 20 content of that document.
 21 Q. (BY MR. BOND) Well, I mean, in the
 22 normal course of business, don't you expect them to
 23 be aware of it? Or does that just go unnoticed?
 24 You put it in a drawer and never see it again?
 25 MR. DENNY: Objection, form.

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1 A. I have not seen that document before. I
 2 didn't know it existed; and I, therefore, have no
 3 idea who has seen it and who hasn't.
 4 Q. (BY MR. BOND) Don't you think if you are
 5 going to do an MOC that's kind of an important
 6 document?
 7 A. I am not sure I understand your question.
 8 Q. Sure. Don't -- well, if you are doing an
 9 MOC for a trailer siting with, I guess, a blowdown
 10 stack over here at the ultracracker and you have
 11 another blowdown stack at the ISOM, don't you think
 12 it's kind of important to have an incident report
 13 or know of an incident report that -- where you are
 14 going to put the trailer?
 15 A. If I was conducting the management of
 16 change for the siting of a building, I would expect
 17 to go through an analytical process, which largely
 18 follows the recommended industry guidance, which is
 19 covered in the American Petroleum Institute's
 20 recommended practice 752.
 21 Q. My question was, sir --
 22 MR. BOND: I will object to that
 23 as nonresponsive.
 24 Q. (BY MR. BOND) -- was: Would you like to
 25 have this incident investigation report that shows

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1 a discharge of hydrocarbons into the atmosphere
 2 prior to doing a trailer siting?
 3 A. I would need to read that document in its
 4 entirety and understand the full context and
 5 circumstances of the incident to know whether it
 6 was relevant to the siting of -- of the building in
 7 a process unit that I have not worked on.
 8 Q. Okay. You keep calling it a building;
 9 but these are trailers, right?
 10 A. I believe a trailer is a building.
 11 Q. Well, did you put in here "building
 12 siting" in your final report or "trailer siting"?
 13 A. I think I used the term "facility
 14 siting," which is what the PSM regulation refers
 15 to.
 16 Q. I am going to show you 5.12.5 page 92 and
 17 this is my copy but you have one. I am not putting
 18 it in evidence. Do you call that a building, sir,
 19 or is that trailers?
 20 A. I am sorry. Where am I looking?
 21 Q. Right there in the middle of the page
 22 where in bold it says the word "trailers"?
 23 A. Oh, this refers to a trailer siting
 24 checklist.
 25 Q. Uh-huh.

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1 A. That's a particular document.
 2 Q. Okay. Is it referring to --
 3 A. Not to what I was referring.
 4 Q. Is it a building siting checklist or
 5 trailer siting checklist?
 6 A. That refers to a trailer siting
 7 checklist, which is a specific document that Texas
 8 City used to use. I don't know whether they still
 9 use.
 10 Q. Did you call it the JE Merit building or
 11 the JE Merit trailer?
 12 A. That refers to JE Merit trailer.
 13 Q. All right. Because there is a difference
 14 between putting a building up with a -- with a slab
 15 and solid construction and a trailer, correct, sir?
 16 A. I have seen all manner of buildings of
 17 all forms of construction materials.
 18 Q. So there's --
 19 A. So --
 20 Q. -- not a difference?
 21 A. Buildings come in all shapes and sizes
 22 and different building materials.
 23 Q. Don't they have a specific requirement in
 24 putting up trailers, sir? Doesn't BP have specific
 25 requirements?

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1 A. I am not sure I --
 2 Q. I am talking about the feet. Do you
 3 understand what I am talking about 150 feet away?
 4 A. The --
 5 MR. DENNY: Objection, form.
 6 A. Texas City refinery used to have a
 7 management of change procedure for the siting of
 8 buildings which considered the separation distance
 9 of the building from a process unit. Different
 10 materials of construction for the building had
 11 different separation distances -- minimum
 12 separation distances from the process unit.
 13 If a building was to be sited at a
 14 smaller distance than the minimum separation
 15 distance, then Texas City's management of change
 16 procedure required a full facility siting analysis
 17 to be conducted.
 18 Q. (BY MR. BOND) And did this one require a
 19 management of change procedure?
 20 A. Every building that is sited at Texas
 21 City refinery -- I am talking about prior to March
 22 the 23rd -- required a management of change.
 23 Q. All right. And of course this one wasn't
 24 done completely, correct, sir?
 25 A. The management of change for the JE Merit

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1 trailer was initiated. There was a review meeting
 2 held, but I understand that the final documentation
 3 was not signed off and completed.
 4 Q. Okay. My question was: The MOC for the
 5 siting of the JE Merit trailer was not completed,
 6 correct, sir?
 7 A. I think that's what I just said.
 8 MR. BOND: I am going to object to
 9 the nonresponsive portion of the previous answer.
 10 Q. (BY MR. BOND) Now, what portion of the
 11 MOC was left off?
 12 A. Can I refer to the --
 13 Q. Oh, sure.
 14 A. -- report just to remind myself, please?
 15 Q. This is not a memory test. You can look
 16 at anything.
 17 If you want me to find it for you,
 18 I can.
 19 (Discussion off the record.)
 20 Q. (BY MR. BOND) Can I find it for you real
 21 quick?
 22 A. I think there were a number of
 23 recommendations that weren't resolved. There were
 24 two action items that remained open, shutting down
 25 traffic to the catalyst warehouse between Avenue F

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1 and G and the posting of evacuation signs.
 2 Q. And doing an MOC --
 3 MR. BOND: How are we coming
 4 along?
 5 THE VIDEOGRAPHER: One minute.
 6 (Discussion off the record.)
 7 THE VIDEOGRAPHER: Off the record,
 8 5:42 p.m.
 9 (Recess taken.)
 10 THE VIDEOGRAPHER: On the record
 11 5:44 p.m., beginning Tape 7.
 12 Q. (BY MR. BOND) Would you expect the
 13 person, the team leader doing the MOC, would you
 14 expect them to have experience in that area?
 15 A. I would expect the team leader of an MOC
 16 to have experience of the MOC procedure, to
 17 understand the procedure in general terms, and I
 18 would expect him to assemble a team around him that
 19 is cognizant in all of the appropriate issues.
 20 Q. So would you expect him to know about the
 21 ISOM unit or what it did or that it had a blowdown
 22 stack? Would you expect them to be cognizant of
 23 the blowdown stack or would you not even care?
 24 MR. DENNY: Objection, form.
 25 A. I would expect a management of change

<p style="text-align: right;">Page 222</p> <p>1 team that was reviewing the siting of a building 2 on, for example, the ISOM unit to include someone 3 from the ISOM unit who was aware of and understood 4 the -- the process unit. 5 Q. (BY MR. BOND) Would you expect him to be 6 aware of this incident that occurred on 8/5/2004? 7 A. Not necessarily, if it was a different 8 process unit. I would expect them to be 9 knowledgeable in their own process unit and the 10 hazards that that process unit presented or 11 potential hazards that process unit presented. 12 Q. Well, these trailers were being sited 13 next to the ultracracker, correct, sir? 14 A. No, these trailers were being sited next 15 to the ISOM unit. 16 Q. Which is next to the ultracracker? 17 A. Which is to the south of the 18 ultracracker. 19 Q. About a hundred feet away? 20 A. Something like that -- 21 Q. Okay. 22 A. -- order to the nearer part of the 23 ultracracker. 24 Q. You wouldn't expect them to be aware of 25 an incident involving a hydrocarbon release from a</p>	<p style="text-align: right;">Page 224</p> <p>1 ultracracker. 2 Q. And when was a request made? Can you 3 tell from the -- your report? 4 A. I am not sure it actually states a date. 5 From memory it was -- I know it 6 was sited towards the end of 2005 -- sorry, 2004. 7 Q. Okay. 8 A. And I know it was in -- it was certainly 9 in location January of 2005 because I have seen an 10 early photograph of that date. 11 Q. And could you read the final report date 12 for the hydrocarbon release at the ultracracker 13 unit into the record? 14 Do you see it, sir? Top left-hand 15 corner? 16 A. Well, this document says, "final report 17 date September the 1st, 2004." 18 Q. So we are not talking -- 19 A. It doesn't appear to be signed and dated. 20 Q. It wasn't signed for some reason I guess 21 because your -- like your final report, they didn't 22 feel the need to sign it. 23 On your -- and, I guess, page ii 24 of the final report, you indicate "a poor level of 25 hazard awareness and understanding of process</p>
<p style="text-align: right;">Page 223</p> <p>1 blowdown stack or would you? 2 A. If it were relevant to the siting of that 3 building on that process unit, I would expect them 4 to. 5 Q. To know about it? 6 Who called for the trailer siting 7 of the JE Merit trailer? Do you know? I don't 8 need a name. I just need to know. 9 A. My understanding was that it was being 10 used for a motorization project. So I would 11 assume, and this is my speculation, that it was -- 12 it was initiated by either the -- whoever was 13 involved with the motorization project, be that the 14 contractor or, you know, whoever their contact 15 within the site was. 16 Q. You don't need to speculate. Look at 17 your report and tell me what it says. 18 A. (Examines documents.) 19 Q. Can you tell us, sir? 20 A. It doesn't actually say who was 21 responsible for -- 22 Q. What unit was responsible for requesting 23 it? 24 A. It looks like it was the -- well, the 25 work was -- the motorization project was on the</p>	<p style="text-align: right;">Page 225</p> <p>1 safety on the site resulted in people accepting 2 levels of risk that are considerably higher than 3 comparable installations." 4 What comparable installations were 5 you talking about, sir? 6 A. Those were some personal views that I 7 expressed in the -- I have worked a variety of 8 other sites over the years, and I personally would 9 not have tolerated some of the levels of risks that 10 I saw. 11 MR. BOND: I am going to object as 12 nonresponsive. 13 Q. (BY MR. BOND) What other comparable 14 installations were you talking about, sir? 15 A. I have worked at other refineries in the 16 Isle of Grain in Kent. 17 Q. Okay. 18 A. Llandarcy, in South Wales. 19 Q. Okay. 20 A. Antwerp in Belgium. 21 Q. Okay. 22 A. I have worked in oil terminals in 23 Sullom Voe. I have worked in offshore oil 24 production facilities in the North Sea, in the Gulf 25 of Mexico.</p>

<p style="text-align: right;">Page 226</p> <p>1 Q. Anyplace else. 2 I am not asking where you worked. 3 I am asking the places where you had, you know, a 4 lower threshold of risk. All of these places that 5 you named had lower threshold of risk than BP Texas 6 City? 7 A. I believe so. 8 Q. Anybody else that we didn't name -- 9 anyplace else? 10 A. I am sure there are some I can't name. 11 Q. When you say "higher level of risk," what 12 exactly are you talking about? What risk? 13 A. I saw and I believe the report mentions 14 it. I saw the -- in its simplest form the location 15 of some of the buildings. 16 Q. The location of the trailers? 17 A. And vehicles. 18 Q. When you say "the location of some of the 19 trailers," what do you mean? 20 A. I think I said "buildings." 21 Q. I know. I am saying "trailers" because 22 we are talking about trailers, aren't we? When you 23 say "building locations," you are talking about 24 some of the trailers? 25 A. I am talking about buildings in the</p>	<p style="text-align: right;">Page 228</p> <p>1 A. Yes. 2 Q. Okay. And I think you said you reviewed 3 27,000 documents, something like that? 4 A. I personally did not read them all. I 5 believe someone in the investigation team at least 6 read each and every document. 7 Q. All right. Now, I am going to -- after 8 reviewing that you did a thorough investigation, 9 correct, sir? 10 A. I believe it's more thorough than any 11 other investigation report that I have seen BP or, 12 indeed, the other companies have performed that I 13 have been -- that have been shared with me. 14 Q. Okay. These documents didn't have names 15 redacted out of them, did they? 16 A. I am sorry? I am not sure I understand 17 the question. 18 Q. Do you know what "redacted" means? Like 19 people's names, were they taken out, scratched out 20 so you couldn't read them? 21 A. Out of which report? 22 Q. Out of any of the documents that you 23 read. Did you see them where there were any 24 scratched out names? 25 A. No.</p>
<p style="text-align: right;">Page 227</p> <p>1 widest sense. Some of them may be trailers and 2 some may be -- have -- be built of other materials 3 construction. 4 Q. What other buildings besides trailers are 5 you talking about? 6 A. I have seen metal frame buildings at 7 Texas City that I would -- I wonder about the 8 appropriateness of their location. 9 Q. Why do you wonder about the 10 appropriateness of their location? 11 A. Because they seem to tolerate a level of 12 risk that I personally would not. 13 Q. What do you mean by that? Do you mean 14 because they are close to a process unit? They are 15 there when people are turning around? What are 16 you -- 17 A. My initial impression is that they appear 18 close to a process unit and that is why I made one 19 of the recommendation in the final report that a 20 full and proper facility siting analysis be 21 conducted for the site at Texas City, and that will 22 examine the -- the location of all of the occupied 23 buildings. 24 Q. Now, you indicated you worked on this 25 report for nine to ten months, correct, sir?</p>	<p style="text-align: right;">Page 229</p> <p>1 Q. Okay. So when you were reviewing these 2 documents, when you were interviewing these 3 witnesses, you had access to names of management 4 that were out there, correct, sir? 5 A. When I was conducting this investigation, 6 I am obviously aware of the names of everybody that 7 I interviewed and discussed, you know, the facts 8 with. 9 Q. Now, you indicated your, of course, your 10 investigation didn't look in trying to assess blame 11 on certain individuals, correct, sir? 12 A. That's correct. 13 Q. All right. 14 A. That has never been the requirement of 15 any investigation team within BP to my knowledge. 16 Q. Okay. But certainly, given the fact that 17 you spent nine to ten months and reviewed 27,000 18 documents or had somebody on your team review 19 27,000 documents, you formed opinions about some 20 management personnel that, I guess, weren't up to 21 snuff, correct, sir? 22 MR. DENNY: Objection, form. 23 A. That was not a requirement of the 24 investigation that I was asked to perform. 25 Q. (BY MR. BOND) I am not asking what your</p>

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1 requirements were. I am not asking about the
 2 investigation. I am asking about your opinions,
 3 just your opinions alone.
 4 You formed some opinions about
 5 certain people out there, certain management
 6 personnel out there that they weren't up to snuff,
 7 correct, sir?
 8 MR. DENNY: Objection, form.
 9 A. I don't think so. I certainly
 10 interviewed some people who were not terribly
 11 responsive to being interviewed and as a result of
 12 that, I maybe -- well, I know I came to the
 13 conclusion that they were being uncooperative with
 14 the investigation.
 15 Q. (BY MR. BOND) So everybody, in your
 16 opinion, management out there --
 17 MR. WILLIAMS: Mr. Broadribb,
 18 thank you.
 19 MR. DENNY: I am going to put on
 20 the record that you have no more questions,
 21 Mr. Williams. Is that accurate?
 22 MR. WILLIAMS: I am not here to
 23 be -- answer your questions and be interrogated by
 24 you, Mr. Denny.
 25 MR. DENNY: But I made a correct

Page 231

1 statement, didn't I?
 2 MR. WILLIAMS: Okay. Pretty much.
 3 (Discussion off the record.)
 4 Q. (BY MR. BOND) What was not responsive?
 5 A. I am sorry.
 6 Q. Who was not responsive?
 7 A. We already mentioned one of them. That
 8 was David Harlan. I had a shift supervisor who was
 9 not very responsive.
 10 Q. Who was he, if you remember?
 11 A. Scott Yerrell.
 12 Q. Okay.
 13 A. And I had some operators who by the time
 14 we got to the third or fourth interviews with those
 15 individuals was somewhat reluctant to be
 16 interviewed and not again.
 17 Q. Okay. And you didn't form any opinions
 18 about -- opinions specifically about anybody in
 19 management after nine or ten months, except for
 20 what you have here about inadequate leadership?
 21 A. That's correct.
 22 Q. Okay.
 23 MR. BOND: Pass the witness.
 24 MR. DENNY: Anybody else? Hearing
 25 nobody responding, we will reserve our questions

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1 until a later date. Thank you.
 2 THE VIDEOGRAPHER: Off the record
 3 5:58 p.m.
 4 (Deposition concluded.)
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Page 233

1 EXAMINATION
 2 CHANGES AND SIGNATURE
 3 PAGE LINE CHANGE REASON
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MICHAEL P. BROADRIBB

Page 234

1 I, MICHAEL P. BROADRIBB, have read the foregoing
 2 deposition and hereby affix my signature that same is
 3 true and correct, except as noted above.
 4

 5 MICHAEL P. BROADRIBB
 6

7 THE STATE OF _____)
 8
 9 COUNTY OF _____)

10 Before me, _____, on this day
 11 personally appeared MICHAEL P. BROADRIBB, known to me
 12 or proved to me on the oath of _____ or
 13 through _____ (description of identity card
 14 or other document) to be the person whose name is
 15 subscribed to the foregoing instrument and
 16 acknowledged to me that he/she executed the same for
 17 the purpose and consideration therein expressed.
 18 Given under my hand and seal of office on this
 19 _____ day of _____, _____.

 20 NOTARY PUBLIC IN AND FOR
 21 THE STATE OF _____

22 My Commission Expires: _____

23
 24
 25

Page 235

1 CAUSE NO. 05CV0337
 2 MIGUEL ARENAZA, ELIZABETH) IN THE DISTRICT COURT
 3 RAMON, DAVID G. CROW and)
 4 JUANITA G. CROW, et al.)
 5)
 6 VS.) 212TH JUDICIAL DISTRICT
 7)
 8)
 9 BP PRODUCTS NORTH AMERICA)
 10 INC., B.P. CORPORATION)
 11 NORTH AMERICA INC., DON)
 12 PARUS, AND JE MERIT)
 13 CONSTRUCTORS, INC.) GALVESTON COUNTY, TEXAS
 14 CAUSE NO. 05CV0337-A
 15 IN RE: BP AMOCO EXPLOSION) IN THE DISTRICT COURT
 16 MARCH 23, 2005)
 17 COORDINATED DISCOVERY) 212TH JUDICIAL DISTRICT
 18 PROCEEDINGS)
 19) GALVESTON COUNTY, TEXAS
 20 REPORTER'S CERTIFICATE
 21 ORAL VIDEOTAPED DEPOSITION OF
 22 MICHAEL P. BROADRIBB
 23 FEBRUARY 15, 2006

24 I, Stephanie Barringer, Certified Shorthand
 25 Reporter in and for the State of Texas, hereby
 certify to the following:

That the witness, MICHAEL P. BROADRIBB, was duly
 sworn and that the transcript of the deposition is a
 true record of the testimony given by the witness;

That the deposition transcript was duly
 submitted on _____ to the witness or to the
 attorney for the witness for examination, signature,
 and return to me by _____.

That the following is the computer-calculated
 amount of time used by each party at the time of the
 deposition:

Mr. Williams (5 hours, 27 minutes)
 Mr. Bond (33 minutes)
 Attorneys for Plaintiffs

Page 236

1 That pursuant to information given to the
 2 deposition officer at the time said testimony was
 3 taken, the following includes the parties of record:
 4

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 18 RENE RODRIGUEZ:

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21 That a copy of this certificate was served on
22 all parties shown herein on _____ and
filed with the Clerk.
23

24 I further certify that I am neither counsel for,
related to, nor employed by any of the parties in the
action in which this proceeding was taken, and
25 further that I am not financially or otherwise

Page 239

1 Further certification requirements pursuant to
2 Rule 203 of the Texas Code of Civil Procedure will be
3 complied with after they have occurred.

4 Certified to by me on this _____ day of
5 _____,
6 _____.
7
8
9 _____

10 Stephanie Barringer, CSR
Texas CSR 6198
Expiration: 12/31/06
11 U.S. Legal Support
Firm Registration: 122
12 519 N. Sam Houston Pkwy., Ste. 200
Houston, Texas 77060
13 Main number: 713/653-7100
Fax number: 713/653-7143
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1 FURTHER CERTIFICATION UNDER TRCP RULE 203

2

3 The original deposition was/was not returned to
4 the deposition officer on _____.

5 If returned, the attached Changes and Signature
6 page(s) contain(s) any changes and the reasons
7 therefor.

8 If returned, the original deposition was
9 delivered to Mr. Jim Hart at the Williams & Bailey
10 law firm as the custodial attorney.

11 \$_____ is the deposition officer's
12 charges to the Plaintiffs for preparing the original
13 deposition and any copies of exhibits;

14 The deposition was delivered in accordance with
15 Rule 203.3, and a copy of this certificate, served on
16 all parties shown herein, was filed with the Clerk.

17 Certified to by me on this _____ day of
18 _____,
19 _____.

20 _____

21 Stephanie Barringer, CSR
Texas CSR 6198
Expiration: 12/31/06
22 U.S. Legal Support
Firm Registration: 122
23 519 N. Sam Houston Pkwy., Ste. 200
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