

1
2 IN THE UNITED STATES DISTRICT COURT FOR THE
3 EASTERN DISTRICT OF LOUISIANA

4 JO ANN BISHOP, ET AL,

5 Plaintiffs,

6 vs.

Case No.:07-2832

7 SHELL OIL CO., ET AL,

8 Defendants.

9 _____/

10
11 DEPOSITION of DAVID PYATT, held on June 24,
12 2009, at 6901 Tower Road, Denver, Colorado, commencing
13 at 9:18 a.m., before Janet Lee Priestley, a Shorthand
14 Reporter and Notary Public in and for the State of
15 Colorado.
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2 APPEARANCES:

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24 L.P., Marathon Oil Company, and

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24 Defendant Murphy Oil USA, Inc.

25 ALSO PRESENT: Roger Stuart, CLVS

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1
2 DEPOSITION OF DAVID PYATT

3 JUNE 24, 2009

4 THE VIDEOGRAPHER: The videotape
5 recording has commenced and we are now on
6 the record. Today is June 24th, 2009. The
7 time is approximately 9:18 a.m. My name is
8 Roger Stuart, Jr., and I am the certified
9 legal video specialist for Accurate Court
10 Reporting, Incorporated, whose business address
11 is 24650 Sandhill Boulevard, Suite 401, in
12 Punta Gorda, Florida, 33983. This is the
13 deposition of David Pyatt, Ph.D., in the
14 matter of Jo Ann Bishop, plaintiff, vs.
15 Shell Oil Company, et al., defendants, Case
16 No. 07-2832 pending in the U.S. District
17 Court, Eastern District of Louisiana. This
18 deposition is being taken at Courtyard
19 Marriott Denver Airport, address 6901 Tower
20 Road in Denver, Colorado, zip code 80249,
21 taken on behalf of the plaintiff. The court
22 reporter is Janet Priestley. Will counsel
23 please identify yourselves for the record,
24 stating your name, your addresses, and --

25 MR. WILLIAMS: Eric Williams and

1
2 Richard Fernandez for the plaintiffs.

3 MR. FARNET: Glenn Farnet for
4 Defendants Shell Oil, Shell Chemical, Marathon
5 Oil, and El Paso.

6 MR. PERRY: Stan Perry for the Shell
7 defendants.

8 MR. RILEY: Jim Riley, Radiator
9 Special Company.

10 MR. MADIGAN: T.J. Madigan for
11 Murphy Oil USA, Inc.

12 THE VIDEOGRAPHER: Thank you. The
13 notary public and court reporter will
14 stenographically record the testimony today.
15 At this time the reporter will please swear
16 in our witness.

17 Thereupon,

18 DAVID PYATT,
19 being first duly sworn in the above cause,
20 was examined and testified as follows:

21 THE VIDEOGRAPHER: Thank you.
22 Counsel, you may now proceed.

23 EXAMINATION

24 BY-MR.WILLIAMS:

25 Q. Yes. Would you please state your

1
2 name and address for the record, sir.

3 A. Sure. David Pyatt, 1944 Cedaridge
4 Circle, Superior, Colorado 80027.

5 Q. What's your date of birth, sir?

6 A. June 18, 1958.

7 Q. And Dr. Pyatt, what degrees have you
8 earned so far?

9 A. I have an undergraduate bachelor of
10 science in biology/chemistry. I had a
11 science education degree because I taught
12 school for a little while. And then I have
13 a Ph.D. in toxicology.

14 Q. And you said a science education
15 degree. Is that a --

16 A. No, science --

17 Q. -- undergraduate or a master's?

18 A. I'm sorry; a science education.
19 It's a B.S. degree, but it involves the
20 educational certification so you can teach.

21 Q. Okay. What year did you receive
22 your Ph.D. in toxicology?

23 A. '95.

24 Q. How does one become a toxicologist,
25 Doctor?

1
2 A. I think to be a toxicologist, you
3 get an advanced degree in the subject. I
4 think --

5 Q. Are there also professional
6 certifications for toxicology?

7 A. There -- yes. Yes. There are some
8 for -- I think there's a medical sort of
9 toxicology, but I'm not quite sure how that
10 one works. And then there's board
11 certification with the American Board of
12 Toxicology.

13 Q. And are you certified with the
14 American Board of Toxicology?

15 A. No.

16 Q. Okay. So is it your testimony that
17 either certification through the American
18 Board of Toxicology or a Ph.D. in toxicology
19 would make one a toxicologist?

20 A. The American Board of Toxicology set
21 up their certification program where you take
22 the tests with so many years of experience.
23 So with the caveat that in order to take the
24 exam you have to have the appropriate
25 experience and publication record, sure, I

1
2 think that's fine.

3 Q. Okay. Have you ever sat for the
4 toxicology exam?

5 A. No.

6 Q. Have you ever applied for it?

7 A. I applied once in 2000 or maybe 1999
8 and was accepted, but then -- I don't
9 exactly remember, but something came up and I
10 was unable to take the exam.

11 Q. Do you have an opinion whether or
12 not that is a rigorous exam?

13 A. I've heard that it's pretty hard,
14 yes. I think most people that actually have
15 a Ph.D. in the field and have actively been
16 involved in the teaching and the utilization
17 of this science have an okay time taking it.
18 But you don't have to have a Ph.D. in
19 toxicology to take the exam, based on your
20 number of years that they agree you actually
21 have been working in the field. So I think
22 some people who sit for the test have a very
23 hard time with it because they don't really
24 have the didactic training that they would
25 need to be successful at it. So its failure

1
2 rate is quite high. That's my understanding.

3 Q. Would you consider someone to be a
4 toxicologist if they didn't have a Ph.D. in
5 toxicology or were not board certified in
6 toxicology?

7 A. No.

8 Q. Thank you. Doctor, where do you
9 work?

10 A. I work for Summit Toxicology, my
11 consulting company, and then I also work for
12 the university.

13 Q. Okay. And what is your current
14 title at Summit?

15 A. I guess my official title would be
16 principal and cofounder. There's only three
17 of us so I probably could give myself any
18 title that I'd like. No, I guess I couldn't
19 be president because one of my partners
20 claimed president when we first started.

21 Q. And what do you do at the
22 university, Doctor?

23 A. I teach courses in toxicology. I
24 teach a class in environmental epidemiology.
25 I teach a class in risk assessment. I sit

1
2 on committees, curriculum development
3 committees. I sit on graduate student
4 advisory boards; you know, basic academic
5 activities for someone who no longer has an
6 active research lab.

7 Q. Doctor, have you ever published a
8 study relating to benzene and multiple
9 myeloma?

10 A. Well, I published a couple papers
11 relating to the metabolites of benzene and
12 effects on B lymphocytes, which I think has
13 some bearing on this issue. But if you're
14 asking about an epidemiology study, the
15 answer is no.

16 Q. Okay. Have you done any research on
17 benzene and multiple myeloma independent of
18 litigation?

19 A. Yes.

20 Q. Tell us what you've done.

21 A. Well, the context -- at least part
22 of the context in thinking about what
23 metabolites of benzene might do with B
24 lymphocytes, I mean, that was part of the
25 thought, that and non-Hodgkin's lymphoma.

1
2 And then I've done other work that wasn't --
3 that was on benzene involving risk
4 assessments and things like that where this
5 was part of the evaluation, understanding --

6 Q. Have you specifically done a study,
7 any research, on benzene and multiple
8 myeloma?

9 A. I think I've answered that. I'm not
10 -- maybe I'm not understandings your
11 question.

12 Q. Okay. What did you think -- I'm
13 sorry. What was your answer?

14 A. Well, that within the context of
15 thinking about the metabolites of benzene and
16 B lymphocytes as well as the Giles specific
17 risk assessment on benzene and some of the
18 other risk assessment work that I've done on
19 benzene, multiple myeloma was part of that
20 process, thinking about this disease.

21 Q. Okay. Doctor have you worked for
22 any federal agencies relating to research on
23 benzene and multiple myeloma?

24 A. That's pretty specific. I guess the
25 answer to that would be no.

1
2 Q. What percentage of your work involves
3 litigation?

4 A. With pretty wide confidence intervals
5 I'd say the answer is 30, maybe 40 percent.
6 It varies depending on the time frame that
7 you cut off. Sometimes I'm busy doing this.
8 Other times I don't do very much of it at
9 all. But on average, I think that's fair,
10 30 percent.

11 Q. And what percentage of the 30
12 percent deals with chemicals and causation?

13 A. I would think all of it.

14 Q. Okay. Do you know how many cases
15 that you have served on as an expert dealing
16 with chemicals?

17 A. I don't know, no. I've been doing
18 this for five years.

19 Q. Okay. So you started doing this
20 around 2004?

21 A. Excuse me. Sorry. That sounds
22 right, yes.

23 Q. And let's back up for a second.
24 Doctor, did you receive a notice for this
25 deposition?

1

2 A. I did.

3 Q. Okay. Could you please pull out the
4 notice and tell me what you brought with you
5 today in response to our notice.

6 A. I'll be happy to. Okay. Do you
7 want me to -- how do you want to do this?
8 Do you want me to just tell you what I
9 brought, or would you like for me to go down
10 the list?

11 Q. Why don't you look at the list and
12 tell me what you brought in response to each
13 item.

14 A. Okay. "Documents that were produced
15 to you, reviewed, or relied upon in forming
16 your opinions," I brought that. A copy of
17 my expert report, I brought that. The
18 exhibits to my expert report, I'm assuming
19 that's the citations which I burned onto a
20 CD and sent to Stacy Yates so I'm assuming
21 that's out there and you have a copy. "A
22 copy of the scientific literature that you
23 reviewed in preparing your report," yes, I
24 have that. A list of all the cases, I have
25 that. I have the one invoice that I've

1
2 submitted in this matter, so a statement
3 itemizing the time. Documents -- No. 6,
4 "documents including all studies or scientific
5 documents that do not support your opinion,"
6 of course I have that. "Your file in this
7 case," I think that's what we're talking
8 about, but -- so I'm not exactly sure what
9 that is, but I think I have that.

10 Communications between me and the attorneys,
11 I have that. My college and graduate school
12 transcripts, that was a new one for me, but
13 I do have the graduate school transcripts.
14 I don't have my undergraduate transcripts. I
15 guess they exist somewhere, but not in my
16 possession. I did not bring documentation
17 sufficient to establish income. I was
18 informed that that would not be required.

19 The same with 11, "documentation evidencing
20 the total amount of income earned from
21 litigation regarding Shell." Expert reports
22 that I've provided in other multiple myeloma
23 cases, I did bring that if you'd like them.
24 And a list of cases that I've served as an
25 expert witness involving multiple myeloma,

1
2 there haven't been that many. I think I
3 might have them written down; if not, I can
4 give you the list, the names.

5 Q. Okay. And, Doctor, I had trouble
6 hearing you. You said there was a CD you
7 produced to Stacy Yates?

8 A. Right. Stacy --

9 Q. What are you talking about?

10 A. Stacy -- Ms. Yates asked me if I
11 would take all of the citations from my
12 expert report and put those onto a disk,
13 which I did, and then Fed Ex'd those to her.
14 I was assuming that was going to be
15 distributed around. I also have a disk here
16 today because I brought several binders,
17 which we can go through, you know, whenever
18 it's convenient for you, but so the court
19 reporter doesn't have to take my binders and
20 copy all those and I don't have to let that
21 happen because they never come back the way
22 they left. I put all those studies onto a
23 CD. So I have a CD here that will come to
24 you, I guess, that has all of the scientific
25 studies that I've relied upon on this CD as

1
2 well as all the ones that are in these
3 binders that are in the room now.

4 Q. Fair enough, Doctor. Okay. At this
5 point I'd like to mark the notice as
6 Exhibit-1.

7 A. So what does that mean? I give it
8 to the court reporter?

9 (Whereupon, Exhibit-1 was marked.)

10 BY-MR.WILLIAMS:

11 Q. And the report as Exhibit-2.

12 A. What report? My report?

13 Q. Yes, sir.

14 A. Okay. I brought a copy.

15 (Whereupon, Exhibit-2 was marked.)

16 MR. FARNET: Is that an extra copy?

17 THE DEPONENT: This is the one copy
18 I brought today. I mean, if we're going to
19 talk about it, I'll have to get it back.

20 BY-MR.WILLIAMS:

21 Q. I don't think I'll have that many
22 questions from your report. But if you need
23 to, she can hand it back to you.

24 A. Okay. That's fine. Mr. Williams,
25 do you want --

1
2 Q. I'm sorry, Doctor? The CV is
3 Exhibit-3.

4 A. I was jumping ahead of the court
5 reporter. Do you want the supplemental
6 declaration, which kind of is like the
7 report, or have we not gotten there yet?

8 Q. Hold that off for right now.

9 A. Okay. The CV is 3.

10 (Whereupon, Exhibit-3 was marked.)

11 MR. WILLIAMS: The bill in this
12 case, Exhibit-4.

13 (Whereupon, Exhibit-4 was marked.)

14 MR. WILLIAMS: The communications
15 with counsel in this case will be Exhibit-5.

16 (Whereupon, Exhibit-5 was marked.)

17 MR. WILLIAMS: The transcripts,
18 Exhibit-6.

19 (Whereupon, Exhibit-6 was marked.)

20 BY-MR.WILLIAMS:

21 Q. And Doctor, how many reports did you
22 bring from other cases of multiple myeloma?

23 A. Three.

24 Q. Okay. The reports will be
25 Exhibit-7.

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A. All of them collectively?

Q. Yes, sir.

A. Okay.

(Whereupon, Exhibit-7 was marked.)

BY-MR.WILLIAMS:

Q. The list of cases of multiple
myeloma will be Exhibit-8.

A. I'm going to have to make that.

MR. WILLIAMS: Okay. Ms. Court
Reporter, maybe if we take a break, he can
give that to you before we finish.

THE DEPONENT: So you don't want me
to do it now? That's fine.

BY-MR.WILLIAMS:

Q. You can do it now. That's fine.

A. It won't take long.

Q. Okay.

A. Because I think there's these three.
Let's see. And I don't need to put this
one on there, right? You know that one?

Q. Right.

A. (Deponent complied.)

MR. WILLIAMS: And Ms. Court
Reporter, you can mark the disk as Exhibit-9.

1
2 THE DEPONENT: Okay. Here's the
3 list. Do you want me to read it or just
4 hand it over?

5 BY-MR.WILLIAMS:

6 Q. Well, you can hand it to her, and
7 I'll ask you a question relating to that so
8 we don't have to come back to it.

9 A. Okay. I'm sorry. Do you want the
10 -- I'm sorry, Mr. Williams. I got -- so
11 does she get the disk?

12 Q. Yes. The disk is No. 9. When
13 she's finished stickering it, let me know and
14 I'll continue questioning.

15 A. Okay. So the list is 8.

16 (Whereupon, Exhibit-8 and Exhibit-9
17 marked.)

18 BY-MR.WILLIAMS:

19 Q. Okay. Doctor, how many cases have
20 you served in that involved multiple myeloma?

21 A. Four, not counting this one.

22 Q. Not counting this one?

23 A. Yeah; five counting this one.

24 Q. Okay. And can you tell me the
25 names of those cases?

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A. One is Ben Brown.

Q. Okay.

A. One is Sundquist; an old one, Trojan vs. People's Gas. And those three all have reports. And then the last one is Behymer, B-e-h-y-m-e-r, vs. BP. And that one did not have a report.

Q. Doctor, did all four of those cases involve allegations of benzene exposure?

A. In the mix. I mean, some had diesel. Some had gasoline. Some had coal tar and polyaromatic hydrocarbons. But yes, to one extent or another, benzene was thrown in the mix.

Q. And did you find that benzene caused multiple myeloma in any of those four cases?

A. Did I find that benzene causes multiple myeloma?

Q. No, sir. Was it your opinion that benzene was the cause of the plaintiff's multiple myeloma in any of those four cases?

A. No, sir.

Q. Okay. Was Shell a defendant in any of those cases?

1
2 A. The Ben Brown case, I know that
3 Shell is a defendant. The other ones, I
4 can't honestly say. They might have been
5 somewhere involved. There was always lots of
6 defendants, and they could have been
7 somewhere in the mix, and I honestly don't
8 recall. But I know Ben Brown they are for
9 sure.

10 Q. And what about Radiator Specialty
11 Company who makes Liquid Wrench? Were they
12 a defendant in any of those four cases?

13 A. Not to my knowledge, no.

14 Q. What about Murphy Oil?

15 A. I don't ever call seeing Murphy Oil
16 in anything other than this one.

17 Q. Marathon Oil?

18 A. I've seen Marathon around but not
19 kind of front and center. They've just sort
20 of always been kind of listed in the list of
21 defendants. I'm sorry. That -- as far as
22 the multiple myeloma goes, I don't
23 specifically recall having ever seen them in
24 any of these four cases other than the one
25 that we're in now, Bishop.

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Q. What about Tenneco?

A. I never even heard of those guys until this case.

Q. Okay. Fair enough. Doctor, in how many cases have you served as an expert for the defendants?

A. At this point I have never worked for the plaintiffs so all of my litigation would have been on behalf of defendants.

Q. And approximately how many cases have you worked since you started five years ago?

A. It would be a guess; 30. I don't know.

Q. Okay. Do you know how many involved blood malignancies?

A. The vast majority of them. I mean, there were -- I seem to recall a couple of kind of exceptions to that, but almost all of the work that I've done from a litigation point of view has involved blood disorders.

Q. And did you find in any of those cases that the chemical at issue caused the blood malignancy?

A. Well, I've been consulted on several

1
2 cases where it was my opinion that I could
3 not -- based on the evidence presented, that
4 I could not rule out that benzene had
5 something to do with that person's disease.
6 And then --

7 Q. What type of diseases are you
8 talking about, Doctor?

9 A. Those were all AML cases.

10 Q. But of the 30 cases that you served
11 as an expert we talked about, how many of
12 them did you find that the chemical caused
13 the plaintiff's disease?

14 A. Well, let's put quotations around 30
15 because that's a guess. It may be more.
16 But the ones that I've been retained in,
17 there weren't any. So out of those, the
18 answer would be none.

19 Q. When you say there "may be more," do
20 you think you may have served on more than
21 50?

22 A. I doubt it. I doubt it. I think
23 it probably would be 30 at the low end, 50
24 at the high end. But I don't -- I don't
25 know. I haven't counted them in the five or

1
2 six years I've been doing this.

3 Q. Okay. Doctor, can benzene cause AML
4 leukemia?

5 A. Under appropriate exposure conditions.

6 Q. Okay. And that's my question.
7 Under the worst case scenario, can benzene
8 cause myelodysplastic syndrome?

9 A. Under the worst case high dose,
10 chronic exposure to benzene is associated --
11 potentially caused some forms of
12 myelodysplasia. Myelodysplastic syndrome is
13 not a single thing, and I believe the
14 evidence is stronger for some forms of
15 myelodysplasia than others so you've got to
16 be a little more specific with your answer
17 -- with your question. But in general, I
18 would say under the appropriate exposure
19 conditions I would put myelodysplasia in that
20 positive category.

21 Q. What about ALL leukemia? Can
22 benzene cause ALL leukemia under the worst
23 case scenario?

24 A. There's no evidence to support that,
25 no.

1

2 Q. What about CLL leukemia?

3 A. No.

4 Q. Non-Hodgkin's lymphoma?

5 A. No.

6 Q. Myelofibrosis?

7 A. No.

8 Q. CML leukemia?

9 A. No.

10 Q. Are there any other blood disorders
11 that you can think of that benzene can
12 cause?

13 A. Yes.

14 Q. Please tell me.

15 A. I think the historic literature is
16 pretty clear that really high dose exposure
17 to benzene can cause aplastic anemia. And I
18 think the literature, though it's still
19 evolving, is pretty clear that chronic
20 exposure to benzene causes various cytopenias,
21 including pancytopenia, which may or may not
22 be a precursor to aplastic anemia.

23 Q. Okay. Is benzene classified as a
24 known human carcinogen?

25 A. Yes.

1
2 Q. Do epidemiological studies exist that
3 indicate benzene is a cause of multiple
4 myeloma?

5 A. Are you asking me are there specific
6 studies? I don't --

7 Q. Yeah. Are there specifically
8 significant studies for benzene and myeloma?

9 MR. FARNET: Eric, I don't know --
10 could you restate that question? The speaker
11 kind of flicked on me, and I don't know that
12 I heard it clearly. Could you restate that,
13 please.

14 BY-MR.WILLIAMS:

15 Q. Are there statistically significant
16 studies for benzene and myeloma?

17 A. Statistically significant studies
18 where they have done an adequate
19 characterization of the exposures and
20 quantified benzene, the only one that I can
21 think of, sitting here, is the original
22 Rinsky study in 1987 of the Pliofilm workers.
23 But then with all of the subsequent
24 follow-ups, Mary Paxton in '94 and then
25 Rinsky himself in 2002, that finding weakened

1
2 to nonsignificant levels. In looking at the
3 exposure histories of the four original
4 cases, they don't seem very plausible. So I
5 would say the answer to that is -- well, the
6 answer to your question technically is that
7 one that I'm aware of, but even that one I
8 have trouble with.

9 Q. Okay. Doctor, if I understand you
10 correctly, is it your testimony that if the
11 exposure assessment is not perfect, then you
12 don't think that study's results are
13 reputable; is that correct?

14 MR. PERRY: Object to form.

15 A. Yeah. That's not even close,
16 really, to what I said.

17 Q. Okay. What did you say about the
18 exposure assessment in other studies?

19 A. Well, in other studies or in the
20 Rinsky study?

21 Q. No. I believe you said in other
22 studies the exposure assessment wasn't proper
23 so therefore --

24 A. No, no, no, sir. What I said was
25 that the studies where they have adequately

1
2 characterized the benzene exposure quantified
3 what that exposure was and then conducted an
4 analysis of the multiple myeloma rates in
5 those exposed people. There are a lot of
6 studies where it's a refinery study.

7 Ostensibly there is some benzene there, but
8 they haven't been -- those exposures have not
9 been quantified.

10 Q. So if I understand you correctly, if
11 the exposure to benzene has not been
12 quantified, then you would not rely on that
13 study?

14 A. No, sir. That's not what I said.
15 I've relied on every study that I could find
16 that was even peripherally related to this
17 issue.

18 Q. Okay, Doctor. We'll move on. I'll
19 get back to that. Is benzene associated
20 with multiple myeloma?

21 A. Not in my opinion.

22 Q. Okay. Have you ever opined that a
23 chemical caused an individual to contract a
24 blood malignancy?

25 A. Well, I think I answered that

1
2 question. I mean, that was my opinion in
3 several cases, that it was at least probable
4 or possible, and I wouldn't be able to rule
5 that out. But at that point I was not
6 retained in those cases so it never reached
7 the point where I was putting something down
8 on paper. But yes, it has certainly been my
9 opinion that benzene has caused certain blood
10 disorders.

11 Q. How many cases have you worked on as
12 an expert for Shell that involved blood
13 malignancies and benzene exposure?

14 A. The only -- as I discussed earlier,
15 they may be in the mix somewhere that I'm
16 not -- well, I might have been familiar with
17 it at one point when I worked on the case,
18 but I can't recall whether they were in
19 there now. The only two that I know of are
20 this one and the Ben Brown.

21 Q. Okay. What's your hourly rate,
22 Doctor?

23 A. It's 300 an hour.

24 Q. How many hours have you put in
25 through completion of your report?

1

2 A. Can I go to my invoice?

3 Q. Absolutely.

4 A. So when I submitted the invoice,
5 which was after the report, that was 24, 25
6 hours.

7 Q. Okay. And how many hours have you
8 put in this case up until your deposition
9 today?

10 A. Probably that again, maybe more. I
11 mean, I spent some time --

12 Q. I didn't hear how many hours you
13 said.

14 A. Probably 25, perhaps more, as many
15 as 40. I mean, I put some time into
16 responding to the motion to exclude my
17 testimony, and then I always spend quite a
18 bit of time prepping for deposition. So
19 this weekend and some last week and this
20 week, I mean, this was my primary focus.

21 Q. Okay. Speaking of that, Doctor,
22 have you ever been excluded as an expert
23 witness?

24 A. No, sir.

25 Q. Have you ever been limited by a

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Court in your testimony?

A. No.

Q. Has anyone ever filed a Daubert challenge against you in litigation?

A. Isn't that what you did?

Q. Well, besides me.

A. Oh.

Q. I'm sorry. I didn't hear you, Doctor.

A. I'm pondering the question.

Q. Okay. Take your time.

A. I think they have. I think there's been one or two, maybe more.

Q. Okay. Do you remember the names of those cases?

A. One was Baker. And Chevron, I think, is the primary defendant, but I'm not positive because it's been a while. And they filed a motion, but I never responded to it. The judge dismissed it out of hand. And then there was another one. Boy, it was a long time ago, and I don't -- I don't honestly remember the name. So there's two plus the one you did, so there's three that

1
2 I'm aware of. There might have been others.

3 Q. Okay. Baker, what state was that?

4 A. California. Well, my client was in
5 California, but the actual case was in
6 Cincinnati.

7 Q. Do you know if it was federal court
8 or state court?

9 A. I don't know. It was a really big
10 courtroom.

11 Q. Do you remember which year it was?

12 A. Last year so --

13 Q. Okay.

14 A. -- '08, early '08.

15 Q. And I assume that the Baker case
16 would be listed on your case experience that
17 we attached?

18 A. Yes. Yeah.

19 Q. And did the court reporter --

20 A. We haven't --

21 (Whereupon, a Discussion was held off
22 the record.)

23 MR. WILLIAMS: I'm sorry. Did we
24 attach a list of his entire case work in the
25 last five years?

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THE REPORTER: No.

MR. WILLIAMS: Okay. Let's attach
that as Exhibit-10.

(Whereupon, Exhibit-10 was marked.)

BY-MR.WILLIAMS:

Q. Okay. Doctor, how are cancer-causing
chemicals identified by IARC?

A. I think IARC does a weight of the
evidence evaluation, and they look at all of
the scientific data that they can find. I
know for the IARC it has to be published.
So they look at all of the peer reviewed,
published data on a given chemical, and then
they meet and discuss the relative weight of
all that evidence and then decide upon their
classification.

Q. And what type of studies does IARC
use?

A. I would assume they use all of them.
I've never been part of an IARC panel. But
my understanding is that they would certainly
put the most weight on quantitative
epidemiology, and also they would look at as
far as just can it cause human cancer,

1
2 probable, possible, whatever their
3 classifications are. They would also rely on
4 the long-term animal bioassays. I think
5 mechanistic studies and plausibility studies
6 are probably in the mix somewhere but
7 certainly do not -- and genotoxicity studies,
8 they certainly will not carry the day, but
9 they're probably on the table.

10 Q. Doctor, did you have the opportunity
11 to look at the 1977 Shell study that had
12 eight cases of multiple myeloma?

13 A. I did because you attached it to the
14 motion to exclude my testimony.

15 Q. Okay. Did you have an opportunity
16 to look at Dr. Infante's calculations for
17 multiple myeloma based on that study?

18 A. No.

19 Q. Did you read his report?

20 A. I read his report.

21 Q. Dr. Infante calculated a 2.67, I
22 think it was, PCMR for the eight cases. Do
23 you disagree with his findings there?

24 A. Well, I can't disagree or agree
25 because I don't know what he did to come up

1
2 with those numbers.

3 Q. Do you recall seeing that information
4 in his report?

5 A. I have his report. I can look at
6 it if you'd like, but --

7 Q. Yeah, let's do.

8 A. Even if it's in his report, you
9 know, until those calculations -- they have
10 to be transparent, and they have to go
11 through the peer review process before I
12 would consider that valid.

13 Q. We're not talking about peer review.
14 I'm just asking, do you disagree with the
15 calculations that he performed?

16 A. What I'm telling you is I can't
17 agree or disagree because I don't know
18 anything about how he did it.

19 Q. Is that outside of your field of
20 expertise?

21 A. Well, I can do it, but yes, that is
22 outside of my field.

23 Q. Fair enough. Did you review any
24 Shell documents that showed employees with
25 abnormal blood results that developed multiple

1
2 myeloma while they were in the benzene
3 monitoring program?

4 A. No.

5 Q. Would that have been a factor one
6 way or the other in whether or not benzene
7 can cause multiple myeloma to you?

8 A. Well, I would factor it into my
9 overall determination, but I would have to
10 see that information and evaluate what you're
11 talking about before I could say whether I
12 would consider that a positive or a negative
13 study.

14 Q. Okay. And again, I'm not talking
15 about study. I'm talking about internal
16 documents that indicated Shell employees that
17 were in the benzene blood monitoring program
18 with abnormal blood results developed multiple
19 myeloma.

20 MR. PERRY: Objection to form.

21 Q. Does that matter to you one way or
22 the other whether or not benzene can cause
23 multiple myeloma?

24 A. Well, the way you worded it, no,
25 because in order to understand whether there

1
2 is a real effect going on, you've got to
3 have comparison populations and do statistic
4 analysis. People get multiple myeloma all
5 the time. They're exposed to all kinds of
6 things, and they're exposed to nothing.
7 They're in all works of -- walks of life.
8 So simply saying, Look, here's a bunch of
9 plumbers, and one them got multiple myeloma
10 or even two of them got multiple myeloma;
11 therefore, being a plumber gives you multiple
12 myeloma, that's inappropriate. That's just
13 not how epidemiology works. So without doing
14 the appropriate epidemiological analysis of
15 the data that you're talking about, which I
16 haven't seen, I don't know whether that says
17 anything about benzene or not.

18 Q. All right. What about toxicology,
19 Doctor? If we give rats benzene and they
20 develop diseases, is that how we determine
21 whether or not diseases are capable of
22 causing certain cancers?

23 MR. FARNET: Object to form.

24 A. All right. I'll try to answer that,
25 Mr. Williams. That's kind of a fuzzy

1
2 question. But I think in the overall weight
3 of evidence that something is carcinogenic,
4 then, sure, animal data, of, course would be
5 considered. Whether or not something is
6 going to be classified as a human carcinogen,
7 animal data will not get you there. And
8 even then, in order to discuss a specific
9 form of cancer like we are here, that's a
10 whole different evaluation where you need
11 quantitative epi studies that are looking at
12 the specific disease of interest. Benzene
13 causes zymbal gland tumors in mice and rats.
14 We don't even have a zymbal gland. So
15 clearly the animal data does not tell us
16 that much about what benzene can do in
17 humans.

18 Q. Well, let me ask you this, Doctor.
19 If we can create a cancer in rats through
20 benzene exposure, is it possible that that
21 cancer could occur in humans?

22 A. Well, I think it's possible. And if
23 you didn't have any other information, that's
24 probably what the determination would be,
25 that it's possible or it's probable unless

1
2 you have mechanistic and additional
3 information that would lead you to believe
4 that the tumor type that you saw in the
5 animals was not appropriate or relevant to
6 humans. And there are certainly examples of
7 that. Inbred species of experimental animals
8 all have genetic instabilities that
9 predisposes them to various tumors. Some are
10 relevant to humans, and some are not.

11 Q. Thank you, Doctor. Are you familiar
12 with the ATSDR minimum risk levels for
13 benzene?

14 A. Peripherally.

15 Q. Do you know what the purpose of
16 those levels are?

17 A. I think these mineral -- minimum
18 risk levels are a screening level, sort of a
19 baseline risk assessment that would allow you
20 to say if you're below this, really there's
21 no additional study needed, and you can
22 pretty much forget about it. If you're
23 above this, that certainly is not an
24 indication that someone is going to be
25 harmed, but it would probably indicate from

1
2 the ATSDR's point of view that they would
3 want to do a more sophisticated risk
4 assessment exposure analysis to understand
5 what those individuals were exposed to.

6 Q. Doctor is, multiple myeloma a blood
7 cancer?

8 A. Sure.

9 Q. Do animal studies indicate that
10 benzene can cause cancer of the blood?

11 MR. PERRY: Object to form.

12 A. Well, you know, let's be specific.
13 The animal studies indicate that benzene
14 causes an aggressive T cell lymphoma/leukemia
15 that arises in the thymus and does not
16 really have a precise analogy to humans. So
17 that is actually a pretty good example of
18 where the tumor type does not really
19 correlate with what humans develop. Multiple
20 myeloma is not seen in animals, nor is it
21 seen in humans, but the way you connected
22 those two things I would disagree with.

23 Q. Are there animal studies that
24 indicate that benzene can cause lymphomas in
25 animals?

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2 A. Yes, just what I told you. It's an
3 aggressive T cell lymphoma/leukemia that
4 arises in the thymus, doesn't really have a
5 precise analogy in humans.

6 Q. Are there mechanism studies that show
7 benzene can cause damage to the blood cells?

8 A. There are. In fact, some of my own
9 work would show that.

10 Q. Thank you. Doctor, did you review
11 the material safety data sheets for the
12 defendants in this case?

13 A. No.

14 Q. Doctor, what does a 2.0 or greater
15 relative risk mean to you?

16 A. By itself? Just that?

17 Q. Well, what does it mean in the
18 scientific community?

19 A. I mean, that's all I have, is that
20 relative risk equals 2.0? I don't have
21 anything else?

22 Q. And confidence intervals above a 1.0.

23 A. Okay. Well, that's different. A
24 relative risk of 2.0 with no confidence
25 intervals really doesn't tell me much at all.

1
2 What you just said, if the 95 percent
3 confidence interval does not include the
4 value of 1, then you would say that finding
5 represents a doubling of the risk, and it is
6 statistically significant.

7 Q. Doctor, what is general causation?

8 A. General causation is the analytical
9 process whereby scientists, a group of
10 individuals, a group of scientists would try
11 to determine whether or not a chemical,
12 really at any dose under any circumstances,
13 is capable of causing a specific disease.

14 Q. What is specific causation, Doctor?

15 A. If the general causation has been
16 satisfied, whatever your guidelines or
17 criteria or process that you use, you're
18 satisfied that the chemical can cause the
19 disease in question, then specific causation
20 would be what do we know about the
21 individual in question, and do we think that
22 that chemical -- that there was sufficient
23 exposure for sufficient duration, are the
24 characteristics of the disease consistent with
25 our understanding of what it should look

1
2 like. But basically did the chemical in
3 question cause that person's disease.

4 Q. And Doctor, you did not offer a
5 specific causation in your report, did you?

6 A. Well, you mentioned that in the
7 motion to exclude, and I disagree with that
8 characterization. I mean, I think by
9 definition if you say that the literature
10 does not support an association between
11 benzene and multiple myeloma, then that is
12 offering an opinion, an implied, explicit, or
13 implicit opinion, that Mr. Bishop's multiple
14 myeloma was not caused by benzene.

15 Q. Doctor, what are the known causes of
16 multiple myeloma?

17 A. I think the only one that has
18 achieved a level of certainty that I would
19 agree with is ionizing radiation.

20 Q. Was MR. Bishop exposed to ionizing
21 radiation?

22 A. I don't -- I don't know.

23 Q. Do you know what caused Mr. Bishop's
24 multiple myeloma?

25 A. I do not.

1
2 Q. Doctor, how many 2.0 statistically
3 significant studies do you need to reach an
4 opinion on general causation?

5 A. I can't answer that question the way
6 you worded it.

7 Q. Okay. How many statistically
8 significant studies do you need, does Dr.
9 Pyatt need, to reach an opinion that a
10 chemical caused a person's disease?

11 A. Well, again, I mean, that's really
12 the same question. Let me tell you what my
13 problem with it is. You're not -- how many
14 studies are there? Is there only one study?
15 If there's only one study and that's all
16 there is out there, there's no
17 reproducibility, then you think, okay, here's
18 a statistically significant finding, but it's
19 never been reproduced. Maybe, all right.
20 This is suggestive, and perhaps we've got an
21 issue here. If there are two studies that
22 are out there and they're both statistically
23 significant and they're both elevated, then I
24 would start to think, yeah, this is probably
25 a real phenomenon. With regard to benzene

1
2 and multiple myeloma, there's 50 studies, 60
3 studies, looking at various aspects of
4 occupational exposure, benzene, et cetera.
5 And that collectively doesn't reach the level
6 of general causation so it's hard to answer
7 the question the way you've asked it.

8 Q. Okay. Doctor, are you familiar with
9 The Reference Guide on Toxicology?

10 A. The Reference Guide on Toxicology?

11 Q. Yes, sir.

12 A. I don't know what that is.

13 Q. Are you familiar with The Reference
14 Guide on Epidemiology?

15 A. I don't know what that is.

16 Q. Are you familiar with The Reference
17 Guide on Medical Testimony?

18 MR. FARNET: I just want to object.
19 Are you referring to the federal judicial
20 reference manual for --

21 MR. WILLIAMS: Yes, I am.

22 MR. FARNET: The Federal Judicial
23 Center publications? Is that what you're
24 talking about?

25 MR. WILLIAMS: Yes.

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MR. FARNET: Okay.

A. That helps clarify it, but the answer is still no, I haven't read those.

BY-MR.WILLIAMS:

Q. So it would be fair to say you didn't utilize the methodology outlined in those publications?

MR. FARNET: Object to form.

A. I would disagree with that because I'm -- without having read them, I'm sure what I did is what they would require any thoughtful scientist to do when they're trying to establish a link between a chemical and disease.

THE REPORTER: Excuse me, gentlemen.

Excuse me, MR. Williams.

(Whereupon, a Discussion was held off the record.)

MR. FARNET: Let me just make a clarification here. We have -- Eric, correct me if I'm wrong. But I believe we have an understanding here that one objection will serve for all so you don't necessarily have to get everybody's name, as long as you get

1
2 one objection. Is that agreeable, Eric?

3 MR. WILLIAMS: Yeah. That's fair
4 for this deposition, Glenn.

5 THE REPORTER: Thank you.

6 MR. RILEY: I was the one that
7 objected for Radiator.

8 THE REPORTER: Thank you.

9 THE VIDEOGRAPHER: Gentlemen, this is
10 Roger, the videographer. We have
11 approximately 5 minutes left on the tape.
12 I'll let you know when we have two.

13 MR. WILLIAMS: Thank you.

14 BY-MR.WILLIAMS:

15 Q. Doctor, can you tell me as you sit
16 here today how many studies The Reference
17 Guide on Toxicology, Epidemiology, or Medical
18 Testimony -- let me rephrase the question --
19 how many statistically significant studies you
20 need to reach an opinion on general
21 causation?

22 MR. FARNET: I'll object. I think
23 it was asked and answered, but subject to
24 that.

25 MR. WILLIAMS: No, it wasn't.

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A. I haven't reviewed those documents.

BY-MR.WILLIAMS:

Q. Doctor, can you tell me how many statistically significant studies Dr. Infante relied on that show benzene can cause multiple myeloma?

A. Well, I'd have to go through his report and count them up. But as far as -- we've already talked about this. As far as benzene and multiple myeloma directly linked, the only statistically significant finding is Rinsky, 1987. So that's the only one that he possibly could have relied on.

Q. Well, let me ask you this, Doctor. Did you read Dr. Infante's meta-analysis?

A. I've read Dr. Infante's meta-analysis several times.

Q. Okay. Did he find statistically significant results for benzene and myeloma?

A. You mean in his meta-analysis?

Q. Yes, sir.

A. That was extremely flawed methodology, but yes. Based on what he decided to put into his equation, he was able to manufacture

1
2 a statistically significant finding.

3 Q. And Doctor, was that a peer reviewed
4 publication?

5 A. That, I do not know.

6 Q. Is it published in a journal?

7 A. It was published in a journal. But
8 when I saw it, it came with a whole lot of
9 papers like that. And I think it was part
10 of a symposium, which means that it may not
11 have undergone peer review. Maybe it
12 underwent an abbreviated form of peer review.
13 I don't know.

14 Q. Where are you getting that
15 information from, Doctor?

16 A. Where am I getting what information
17 from?

18 Q. That it may have gone through an
19 abbreviated peer review process.

20 A. Well, when you publish, sometimes
21 journals will put out a special issue for a
22 given topic. Or sometimes journals will
23 cover a specific symposium, and people that
24 come and present in that symposium will also
25 -- in addition to their presentation, they

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2 will submit a manuscript. I've been on some
3 of these groups. When you do that, it is a
4 different process, review or process than
5 when you just submit a journal to -- excuse
6 me -- submit a manuscript to a journal and
7 they send it out to, you know, blinded,
8 editorial folks that are going to offer a
9 review. So I don't know whether that
10 happened or not. But it did appear to me,
11 because it all came across together, that it
12 was part of a symposium. If that's true,
13 then it is possible, perhaps likely, that it
14 was a slightly different or very different
15 review process, from none at all, they just
16 put it in, to the editor, the conference
17 chairperson took a look at it and said fine.
18 But they usually do not have to go through a
19 standard, formalized peer review.

20 Q. Doctor, as you sit here today under
21 oath, is it your testimony that that
22 publication was not peer reviewed?

23 A. No, sir. I said when you first
24 asked me that question that I didn't know
25 whether it was or not.

1
2 THE VIDEOGRAPHER: And this is Roger
3 the videographer. We have less than two
4 minutes left on the videotape.

5 BY-MR.WILLIAMS:

6 Q. Okay. Doctor, are you going to give
7 an opinion as to the level of exposures Mr.
8 Bishop encountered at trial?

9 A. I haven't been asked to do that.

10 Q. Is that your field of expertise?

11 A. No, sir. Well --

12 Q. Do you know if pipe fitters were
13 exposed to high levels of benzene in the
14 '70s?

15 MR. PERRY: Hey, Glenn, can we -- I
16 mean, Eric, can we take a break, just
17 because we're about to run out of tape?

18 MR. WILLIAMS: As soon as he answers
19 that question, we can take a break.

20 MR. PERRY: Okay.

21 A. I actually wasn't finished answering
22 the question before. So the question before
23 was whether or not it's my field of
24 expertise. It's not my field of expertise
25 to actually quantitate what a person's

1
2 cumulative exposure was. But toxicologists
3 are and have always been keenly interested in
4 what the quantitative exposures are and
5 relating that to the scientific data for a
6 given link or disease or chemical. So that
7 is part of what toxicology does. Now, the
8 last part of your question -- I'm sorry --
9 something about pipe fitters, but you're
10 going to have to repeat it.

11 BY-MR.WILLIAMS:

12 Q. Were pipe fitters exposed to high
13 levels of benzene in the 70s?

14 MR. PERRY: Object to form.

15 A. That is outside of my expertise.

16 MR. WILLIAMS: Fair enough. We can
17 change the tape now.

18 MR. PERRY: I'm going to put the
19 phone on mute. We'll be back in about three
20 minutes or more.

21 THE VIDEOGRAPHER: We are off the
22 record at approximately 10:16. This is the
23 end of Tape No. 1 in the deposition of David
24 Pyatt.

25 (Whereupon a Recess was taken from

1
2 10:16 a.m. to 10:25 a.m.)

3 THE VIDEOGRAPHER: We are back on
4 the record at approximately 10:25. This is
5 the beginning of Tape No. 2.

6 BY-MR.WILLIAMS:

7 Q. Are you there, Dr. Pyatt?

8 A. Yes, I'm here. Thanks.

9 Q. Okay. What type of exposure
10 pathways would a pipe fitter encounter to
11 benzene?

12 A. Well, I mean, I don't know that much
13 about what pipe fitters do. I'm not an
14 industrial hygienist so you are getting a
15 little outside of my area. I mean, I can
16 tell you generally that inhalation is by far
17 and away the most important exposure for
18 benzene but that it is possible for there to
19 be some dermal exposure and a small
20 percentage of absorption through the skin.
21 So those, too, I would assume, would be
22 relevant.

23 Q. Ingestion, would that be a
24 possibility?

25 A. It seems a little far-fetched, but I

1
2 guess it's possible if you didn't wash your
3 hands or -- I don't know. That seems a
4 little out there.

5 Q. Dr. Pyatt, are you familiar with a
6 toxicologist named Dennis Paustenbach?

7 A. Yes, sir.

8 Q. Okay. Are you familiar with his
9 study that he published on dermal
10 calculations?

11 A. Who were the other authors?

12 Q. I believe this one was Paustenbach
13 -- Dennis Paustenbach published a study on
14 benzene dermal exposures.

15 A. I read a book chapter that Dr.
16 Paustenbach authored on dermal -- the dermal
17 pathway in risk assessment and various
18 variables, considerations, factors that someone
19 needs to consider if they're going to try to
20 quantitate that pathway for risk assessment.
21 And I'm pretty sure that benzene was one of
22 the examples that he used. But as far as a
23 peer reviewed publication on dermal absorption
24 of benzene per se, I'm not familiar with the
25 one you're talking about unless it is that

1
2 book chapter.

3 Q. Okay. Do you agree with Dr.
4 Paustenbach's publication on dermal
5 calculations for benzene?

6 A. I would have to see those.

7 Q. Okay. Do you know Dr. Paustenbach?

8 A. Yes.

9 Q. How do you know Dr. Paustenbach?

10 A. Well, several ways. Dr. Paustenbach
11 is pretty famous as far as toxicologists go
12 so I knew of him and had met him quite a
13 while ago. He came and gave a presentation
14 at my department a long time ago. But then
15 I actually worked with Dennis, Dr.
16 Paustenbach, for almost a year with his new
17 -- at that point it was the newly formed
18 ChemRisk. I, along with Dr. Pamela Williams,
19 started the Boulder ChemRisk office. And I
20 did that for about eight months, I think, or
21 nine months.

22 Q. And why did you leave ChemRisk?

23 A. I have a pretty strong independent
24 streak. It just really wasn't working for
25 me to be in a highly structured company like

1
2 that. Plus, I had gotten a grant funded so
3 I was splitting my time with the university,
4 and that became more and more difficult, to
5 juggle all of my responsibilities. So I was
6 at the university enough to where it really
7 just didn't make sense to stay on as an
8 employee of ChemRisk. So I retired in
9 September, I think, of maybe '04.

10 Q. Have you ever seen any studies that
11 Dr. Paustenbach published that were -- that
12 used the wrong methodology?

13 A. Not -- no, not that I can recall
14 sitting here today, no.

15 Q. Okay. I know I asked you earlier
16 if you have ever published a study involving
17 benzene and multiple myeloma. My specific
18 question is, have you ever published a study
19 that resulted in an epidemiological risk,
20 relative risk, for multiple myeloma and
21 benzene?

22 A. No.

23 Q. What references of Dr. Infante's did
24 you read?

25 A. I'd have to go through and -- I've

1
2 read them all.

3 Q. Okay. Doctor, did you have the
4 opportunity to look at a document that is
5 Environmental Health, Inc. on the front page
6 of a section of it where it says, "Chronic
7 benzene exposure can cause multiple myeloma"?

8 A. Sorry. No, I haven't seen that.

9 Q. Okay. Would that be of interest to
10 you?

11 A. Sure. I'd be interested in it.

12 Q. Okay. If I told you I received a
13 document from Shell that had that information
14 in it, would that change your opinion that
15 benzene could cause multiple myeloma?

16 A. Well, you know, I'd first of all
17 have to read -- I mean, is it a study? I
18 don't even know what it is you're talking
19 about. It has a title that I think would
20 make me believe that it had some relevance
21 to this issue, but I don't know what's in it
22 or what they've done. For all I know they
23 find that it doesn't cause it. I mean, I
24 just don't know. I don't know what's in
25 that document, whether it --

1
2 Q. You didn't read it in this case,
3 correct?

4 A. No. I haven't seen it, no.

5 Q. Fair enough. Doctor, earlier I
6 asked you if you reviewed the material safety
7 data sheets for the chemicals at issue in
8 this case. Would it be fair to say that
9 you do not know the benzene content in the
10 chemicals at issue in this case?

11 A. Well, I think it would be fair to
12 say I don't know what Shell listed on their
13 MSDS sheets or any of the other defendants
14 on their MSDS sheets. I mean, I've been
15 doing this quite some time, and I am
16 interested in the content of benzene in
17 various solvents and in various petroleum
18 products. So if you told me what product
19 you were referring to, I would have a
20 generally good idea as to how much benzene
21 would likely be in there. But specifically
22 what they listed on their MSDS sheets, no, I
23 would have to look at it.

24 Q. Okay. What's the benzene content of
25 pyrolysis gas?

1
2 A. That's a good question. I don't
3 know the answer to that.

4 Q. Fair enough. Doctor, do peak
5 benzene exposures play a role in the
6 development of blood disorders?

7 A. Well, can you specify what blood
8 disorders you're referring to?

9 Q. Any one that you think benzene can
10 cause.

11 A. Fair enough. There are some
12 studies, and there has always been some
13 debate and discussion around the most
14 appropriate exposure metric with regard to
15 AML risk. I think, in general, the
16 scientific literature supports the notion of
17 using cumulative exposures. But there are
18 studies and evaluations within studies where
19 AML risk was also correlated with peak
20 exposures. So there are both. Both exist
21 in the literature. Certainly from an
22 occupational, regulatory point of view,
23 cumulative exposure makes the most sense, and
24 it's definitely going to be the easiest one
25 to deal with scientifically. There are

1
2 certainly some biologically plausible reasons
3 why high dose, intense exposures would have a
4 different response than low dose, chronic
5 exposures even if they equaled the same
6 cumulative dose. So, you know, the answer
7 is, we don't fully have that completely
8 worked out. Cumulative exposure still is the
9 one that is the most commonly calculated.

10 Q. And Doctor, does the EPA use
11 cumulative benzene exposure figures in
12 regulatory purposes?

13 A. Well, it depends on which -- what
14 are you talking about with EPA? Are you
15 talking about their noncancer reference
16 concentration, or are you talking about their
17 cancer potency slope factor? Because they're
18 very different.

19 Q. I'm referring to cancers, and I'm
20 referring to any type of risk assessment the
21 EOA would do. Do they use a cumulative
22 benzene dose?

23 A. Yes.

24 Q. Okay.

25 A. Yes. They --

1
2 Q. What about the slope factor that you
3 were talking about?

4 MR. FARNET: I just want -- you cut
5 off the witness with his answer so I just
6 want to make sure the witness has finished
7 his answer.

8 THE DEPONENT: That's okay. He
9 followed up with the next question. That's
10 where I was going anyway.

11 A. The cancer slope factor, their cancer
12 risk assessment, as described in IRIS and
13 with their carcinogenic data supporting their
14 IRIS value is based on the Pliofilm cohort.
15 It's based on Postenbach's analysis, Crump
16 and Allen's analysis and Rinsky's analysis.
17 They express it as a range. And all three
18 of those are -- the risks for AML are
19 derived by looking at cumulative exposure.
20 So yes, their cancer potency factor is based
21 on cumulative exposure. Their noncancer
22 value, the reference concentration is
23 different.

24 BY-MR.WILLIAMS:

25 Q. Okay. Doctor, does the EPA or any

1
2 other federal agency use dermal calculations
3 for benzene exposure?

4 A. I don't think they use it in terms
5 of actually quantitating it and putting it
6 into their calculations because their cancer
7 risk assessment is based on what I just told
8 you, these three exposure assessments done
9 for Pliofilm, the Pliofilm cohort. I'm sure
10 there is language in there about dermal, but
11 it is not part of their quantitative
12 assessment of risk.

13 Q. Do you know if the National Cancer
14 Institute uses dermal calculations for benzene
15 for any purpose?

16 MR. PERRY: Object to form.

17 A. The NCI, I don't -- I don't know
18 where they would -- under what -- I don't
19 know how they would. I don't know what the
20 NCI would ever do that would fit in -- that
21 would answer your question.

22 Q. Okay. Doctor, do all studies
23 contain flaws or imperfections?

24 MR. PERRY: Object to form.

25 A. All scientific studies?

1
2 BY-MR.WILLIAMS:

3 Q. Yes, sir.

4 A. I would say if you really were
5 critical and you looked hard enough, you
6 could probably take issue with just about
7 every study that's been published. Some of
8 those things might be quibbles, and some are,
9 you know, true methodological flaws. But the
10 peer reviewed process is not perfect, and
11 science is an iterative process. And we all
12 do the best we can, but I would say the
13 answer to that is, in my opinion, probably
14 yes.

15 Q. Okay. Doctor, do you know if the
16 material safety data sheets for gasoline,
17 crude oil, and other products in this
18 litigation contain warnings that benzene can
19 cause leukemia or blood disorders?

20 A. That is my understanding, but I
21 would need to see the MSDS sheets that
22 you're referring to to know. I mean,
23 there's a labeling requirement, and crude oil
24 doesn't exceed that labeling requirement.
25 There's just not enough benzene in there.

1
2 So I don't know whether it would have it on
3 every MSDS sheet or not. I just wouldn't
4 know without looking at the sheet itself.

5 Q. Doctor, what is the threshold for
6 benzene exposure in AML?

7 A. In my opinion, based on the existing
8 scientific literature and the existing
9 scientific data, that is going to be
10 somewhere between 40 and maybe even 500 part
11 per million years, with the best estimate at
12 this point probably being 200 PPM years.
13 But I would say the low end of that range
14 would be 40 or 50.

15 Q. And when you say "40 or 50," are
16 you talking about multiple exposures to 40 to
17 50 parts per million?

18 A. No, no. All of those values that I
19 just expressed are in part per million year
20 so it is a cumulative dose metric.

21 Q. Okay.

22 A. With regard to air concentrations and
23 a threshold for air concentrations, if you're
24 using the same study that the cumulative
25 exposure came from -- and that is the

1
2 Pliofilm cohort and Rinsky and Crump and
3 Allen, et al., and Williams and all the
4 other exposure assessments that have been
5 done. Rob Schnatter did a very nice
6 analysis that he published in 1996 of what
7 the air concentrations had to be within the
8 Pliofilm facility, the Goodyear facility
9 there, to result in an increased risk of
10 AML, and that was about 20 part per million,
11 less than 20 part per million air
12 concentrations. And there was no real
13 elevation of AML risk.

14 Q. Doctor, would a relative risk of 2.0
15 indicate that there is an increase of 100
16 percent in the exposed population?

17 A. A relative risk of 2.0? By
18 definition, that's what that would mean.

19 Q. In your opinion does a 3.0 relative
20 risk provide strong evidence of a causal
21 relationship?

22 A. Well, 3.0 is bigger than 2.0 so I
23 would consider that to be stronger than 2.0.
24 You could have 50. But without looking at
25 the other considerations -- what's the

1
2 confidence interval, how many studies, how
3 many cases -- there's a lot of things that
4 go into it other than just that number
5 before you can say that you think that's
6 even real. If that's a real finding and it
7 is statistically significant, it was based on
8 a sufficient number of cases, then that's a
9 reasonable -- that's a reasonable effect.

10 Q. What's a sufficient number of cases?

11 A. Well, certainly more than one. It
12 would depend on what the disease is and the
13 power analysis and other considerations for
14 calculating the relative risks. So you can't
15 --

16 Q. How many cases of multiple myeloma
17 would it take for you to think that there is
18 a sufficient number of cases in a study?

19 MR. PERRY: Object to form. How
20 many cases of multiple myeloma or how many
21 multiple myeloma studies?

22 MR. WILLIAMS: Cases in a study.

23 A. Well, I know there's a couple that
24 are out there where there was one or maybe
25 two. And I look at those, and I still

1
2 consider those, but those are more like case
3 reports to me. If you have an n of 1, one
4 single case, to then calculate a SMR, a
5 standardized mortality ratio, and put
6 confidence intervals around it, that's
7 ridiculous. So that's wrong. That is
8 inappropriate from an epidemiological point of
9 view. You probably could do it with two,
10 but most don't. Most epidemiologists would
11 not attempt to do that because it's too
12 unstable. When you get an n of 3, I think
13 then from at least a statistical point of
14 view, you could calculate a reasonably stable
15 SMR. The higher that number, the better the
16 answer is going to be and the more reliable.
17 But, you know, those -- this is a topic that
18 is directly in the wheelhouse of an
19 epidemiologist.

20 BY-MR.WILLIAMS:

21 Q. And that's not something that you
22 feel is in your field of expertise?

23 A. Well, I certainly wouldn't look at a
24 study and say that only has two cases, I'm
25 not going to pay any attention to it. So I

1
2 looked at all of the scientific data, whether
3 it had one case or whether it had eight and
4 didn't really say this one is more important
5 than that one and do this kind of relative
6 strength of the individual studies.

7 Q. Doctor, what is a dose response?

8 A. Dose response is what the words
9 mean, is that there is a biologically
10 rational response at what you're looking at,
11 the endpoint that you're measuring, with
12 increasing exposures or increasing or
13 decreasing doses. So if the dose changes,
14 then you see a biologically meaningful
15 response in what you're looking at. If the
16 dose goes up and the response goes up, then
17 you would consider that a dose response. If
18 the dose is changing and the response is not
19 changing or changing in a way that just
20 doesn't make any sense from a biological
21 point of view, then you don't have a dose
22 response, and you have to really question
23 whether you've set up your experiment right
24 or whether the endpoint that you're looking
25 at is really connected to the dose at all.

1
2 Q. Doctor, do you know if Dr. Infante
3 relied on any studies that show a dose
4 response for benzene and multiple myeloma?

5 A. Well, Dr. Infante had most of the
6 studies in his report. Assuming that he
7 relied on all of those, then that would be
8 my assumption.

9 Q. Well, did any of those studies show
10 a dose response for benzene and multiple
11 myeloma?

12 A. The only one that I can think of is
13 Jim Collins' work with the Dow Chemical
14 worker studies, Collins and Ireland. And
15 there was an increasing response with benzene
16 exposure.

17 Q. Okay, Doctor. We're going to talk
18 about those. Do you disagree with the
19 findings of the 1987 Rinsky study?

20 A. I don't disagree with them. I mean,
21 why would I -- he published what -- you
22 know, he published what he found.

23 Q. And did he find a SMR of 409?

24 A. For multiple myeloma, yes. I mean,
25 I disagree with some of the interpretations

1
2 I've heard of that data based on looking at
3 what those workers were exposed to. I also
4 think it's inappropriate to not consider the
5 updates that have gone into that cohort and
6 follow that cohort through time because that
7 gives you the appropriate information to
8 evaluate those original cases of multiple
9 myeloma.

10 Q. And we'll get to that study in a
11 little bit. I'm asking you about the study
12 that he relied on. Doctor, do you know the
13 results of the Wong 1987 study of multiple
14 myeloma?

15 A. Yes. And by "he" in your earlier
16 question --

17 THE REPORTER: I'm sorry. Repeat
18 your question.

19 THE DEPONENT: My fault.

20 BY-MR.WILLIAMS:

21 Q. What was the relative risk for
22 multiple myeloma in that study?

23 A. As I recall there were two cases in
24 the intermediate exposure category, and the
25 relative risk was 350, but it was not

1
2 statistically significant. That's --

3 Q. Referring --

4 A. -- my recollection.

5 THE REPORTER: I'm sorry. Repeat
6 your question.

7 Q. I'm referring to the three cases,
8 Doctor.

9 A. The three-case one -- I mean, okay.
10 I'll answer one more question, and then I
11 probably should pull it out. There was not
12 a quantitative risk assessment done or
13 quantitative risk ratio calculated for those.
14 The only one that he calculated -- that Dr.
15 Wong calculated was in the intermediate dose
16 range, and there were only two cases.

17 Q. What was the relative risk for the
18 three cases, Doctor?

19 A. I just answered that. He did not
20 do that.

21 Q. Decoufle, do you recall that study?

22 A. Which one?

23 Q. Decoufle, if I'm saying it correct.

24 A. Decoufle (pronouncing)?

25 Q. Yes. There you go.

1

2 A. I'm with you.

3 Q. What were the findings on that

4 study?

5 MR. FARNET: Hold on. Doctor, would

6 you like to pull the studies out?

7 THE DEPONENT: Yeah. I'm going to.

8 A. Can you wait just one second, Mr.

9 Williams, and let me get out my binder?

10 Q. Sure.

11 MR. PERRY: Off the record.

12 THE VIDEOGRAPHER: I have to have

13 counsel agree to go off the record.

14 THE DEPONENT: We don't have to go

15 off the record. It will just take me two

16 seconds.

17 A. Okay. I'm back. Now, I remember

18 the Decoufle study pretty well. The authors

19 did not quantitate a risk ratio for multiple

20 myeloma in their study.

21 BY-MR.WILLIAMS:

22 Q. There was no SMR; is that your

23 testimony?

24 A. That is my testimony.

25 Q. Doctor, let's go to Kirkeleit.

1

2 A. Okay.

3 Q. Were there any findings that were
4 statistically significant for multiple myeloma
5 in crude oil?

6 A. Yes.

7 Q. What were they, Doctor?

8 A. What were the numbers?

9 Q. Yes, sir.

10 A. I think it was 2 point something --
11 I can look and tell you -- in one group of
12 upstream workers. Upstream operators
13 offshore, multiple myeloma was 2.85, the
14 relative risk, with a 95 confidence interval
15 of 1.37 to 5.93.

16 Q. Are you familiar with the Bradford
17 Hill postulates?

18 A. I don't think I've ever heard them
19 called postulates before, but yes, I'm
20 familiar with Bradford Hill.

21 Q. Okay. In the original Bradford Hill
22 article, what did he call them?

23 A. I don't know. Let's look. He may
24 have called them postulates. I don't
25 remember. I thought he called them

1
2 considerations or -- I know people use
3 "criteria," and other people don't like that.

4 Q. Did Bradford Hill himself say that
5 all or none of his -- let's call them
6 considerations are required to offer an
7 opinion as to causation?

8 A. Did he say all or none?

9 Q. Yes.

10 A. Well, I'm pretty sure he did not say
11 all of them were. But it's illogical for
12 him to say that none of them are required?
13 Why would he even have them?

14 Q. Well, I'm asking you, do you know if
15 there's a statement in his article that says
16 that?

17 A. That none are required? I can't
18 imagine that that -- I mean, I haven't
19 memorized the paper, but that just doesn't
20 make any sense. Temporality -- how can you
21 not have temporality and expect there to be
22 causation? So that one is absolutely
23 required by everyone's -- everyone's
24 definition.

25 Q. Doctor, let's go to your references,

1
2 your reference list on your report.

3 A. Okay.

4 Q. Okay. I noticed that you have
5 approximately -- you have 79 studies on here;
6 is that correct?

7 A. Hold on just a second. My original
8 one or the rebuttal declaration?

9 Q. We're talking about the one attached
10 to your report.

11 A. Yes. Okay. Right, 79.

12 Q. Okay. Doctor, how many of these
13 studies -- let me rephrase that. Earlier
14 you testified that there were 60 studies that
15 addressed multiple myeloma and benzene; is
16 that correct?

17 A. I don't recall saying that. I mean,
18 I don't have an exact number. We could
19 probably get --

20 Q. How many of these studies on your
21 reference list address benzene exposure and
22 multiple myeloma?

23 A. Well, we'll have to go through them.

24 Q. Just call out the number, and we can
25 go from there.

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25

A. 14.

Q. No. 14?

A. Correct.

Q. Okay.

A. 15.

Q. Okay.

A. 20, 22, 23, 24, 25, 26, 27, 28, 29,
30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40,
41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51,
52, 53, 54 -- let's take 54 back off -- 55,
56, 57 -- maybe not 57, probably something
that's peripherally related -- 58, 59. These
are kind of occupational studies, surveys of
multiple myeloma where you could speculate
that there are some occupations that would
have benzene exposure, but they didn't
actually quantitate it, the same with 60, so
there's a lot of those; 61, 62. 63 is a
review paper so that's probably not worth
listing. 65 is my review paper. 66 is a
review paper. It looks like the rest of
these deal with the biology of multiple
myeloma; maybe 79. I don't remember whether
Dr. Kyle specifically addressed occupational

1
2 risk factors. So that would be an
3 off-the-cuff list.

4 Q. Okay. Doctor, which studies that
5 you just identified provide epidemiological
6 results for benzene and multiple myeloma?

7 A. For benzene?

8 Q. Yes, sir.

9 A. Not for crude oil?

10 Q. No. We're talking benzene right
11 now.

12 A. And what do you mean? Where they
13 have quantitated the benzene exposure?

14 Q. Yes.

15 A. Well, 14 and 15 are case reports
16 that have to do with benzene, but it was not
17 quantitated so I guess those don't count.
18 20 we talked about. 21 or 22, 23,
19 follow-ups of that one. 24 is quantification
20 of benzene and multiple myeloma. So is 25.
21 26, 27, 28, I don't know. I'd have to look
22 at it. He's certainly talking about benzene,
23 but I don't know if he's quantitated it or
24 not. 31 for sure has. 32, NCI, China --

25 Q. Let me stop you there, Doctor. I

1
2 think you misunderstood my question. I said
3 benzene and multiple myeloma. Multiple
4 myeloma is not addressed in the Hayes study
5 so maybe we need to start over because I'm
6 asking you specifically for benzene with a
7 quantified exposure, as you described, and a
8 result, a statistical result, for myeloma.
9 It seems like you're pulling studies that
10 don't address myeloma.

11 A. I disagree.

12 Q. Tell me where they say myeloma in
13 the '97 Hayes study.

14 A. Well, there weren't any multiple
15 myeloma cases, which you can get out of the
16 Travis '94 and the Yin '96. So there's no
17 reason to do a statistical analysis on one
18 or no cases, but that doesn't mean that that
19 study does not have relevance because it is
20 profoundly relevant to this issue. Because
21 they looked at a very large cohort of
22 workers that had very high exposures to
23 benzene, and they did not see an excess in
24 multiple myeloma. In fact, they didn't see
25 any. So I think that study is clearly

1
2 relevant to what we're discussing.

3 Q. And Doctor, that's not my question.
4 My question was, I wanted you to identify
5 every study that shows a statistical result,
6 whether it be statistically significant or
7 not, for benzene and myeloma.

8 A. And I think I've done that. And I
9 will not take Hayes off that list.

10 Q. Okay. We'll go back to that. Keep
11 going, Doctor.

12 A. 34; probably 39, but that's related
13 to Bond. Let's see. Schnatter for sure.

14 MR. FARNET: What number is that?

15 BY-MR.WILLIAMS:

16 Q. What number?

17 A. 49. I'm just doing this from
18 memory. I mean, I'd really need to go
19 through and look at all these, where they've
20 quantitated the benzene exposure. Well, I
21 think that might be all.

22 Q. Okay. Doctor, what was the result,
23 the statistical result, for No. 21, the Crump
24 study for myeloma?

25 A. There wasn't. That was a risk

1
2 estimate so that was part of the
3 understanding of what the exposures were in
4 the Pliofilm cohort.

5 Q. So there was no result calculated
6 for myeloma in that study?

7 A. No.

8 Q. Okay. Doctor, No. 22, Silver, what
9 was the statistical result for Silver for
10 myeloma?

11 A. I'd have to look and see.

12 Q. Go ahead.

13 A. Do you want it for males and females
14 or white males, or what do you want?

15 Q. Give me the overall.

16 A. The overall multiple myeloma was
17 2.04, and the 95 percent confidence interval
18 was 0.66 to 4.76. That was for males and
19 females, all races combined.

20 Q. What about No. 24, Doctor?

21 A. The total was 2.01, 95 percent
22 confidence interval 0.79 to 7.45.

23 Q. I'm sorry. Did you say .01 was the
24 relative risk?

25 A. 2.01.

1

2 Q. Okay.

3 A. I think that's what it is. It's

4 hard to read it.

5 Q. What about No. 25?

6 A. So you know these are all the same
7 cohort, right?

8 Q. I'm just asking you to identify the
9 number.

10 A. Right. I'm looking. I know it's
11 in here. Sorry it's taking so long. It's
12 somewhere in the text, and I'm not seeing
13 it.

14 Q. Okay. No. 26, Bond, do you know
15 the number for that study?

16 A. Bond, there weren't any multiple
17 myeloma cases.

18 Q. All right. For Collins, No. 27,
19 Infante identified a 4.0 but with a
20 confidence interval below -- 1.0 or below.
21 Does that provide any evidence of an
22 association between benzene and multiple
23 myeloma to you?

24 A. The Collins study?

25 Q. Yes.

1

2 A. I would put the Collins study on the
3 positive side of the column.

4 Q. What about the Constantini with a
5 1.9 odds ratio but the confidence interval is
6 below 1.0?

7 A. I would have to look at it. No,
8 no.

9 Q. No? Okay. What about the Ireland
10 study, No. 34, with 2.3 SMR?

11 A. That's the same -- that's the same
12 as Collins. It's the same cohort.

13 Q. But it's a 1997 study. Would you
14 put that on the positive side?

15 A. I would put it in the same place
16 that I would put Collins, Jim's analysis of
17 that cohort.

18 Q. What about No. 39? Do you know the
19 results from the Ott study?

20 A. Ott is an update of Bond, and there
21 were no multiple myelomas in that cohort.

22 Q. Okay. I believe you said 49,
23 Schnatter?

24 A. Schnatter (pronouncing).

25 Q. Schnatter.

1

2 A. There's lots.

3 Q. I'm sorry, Doctor. I couldn't hear
4 you.

5 A. There are lots of analyses between
6 benzene exposure and multiple myeloma risk.
7 The highest PPM category, the multiple
8 myeloma risk, the highest benzene cumulative
9 exposure PPM year category, the multiple
10 myeloma risk is 1.22 with a 95 percent
11 confidence interval of 0.7, 0.07 to 20.

12 Q. Did you rely on this study?

13 A. Sure.

14 Q. And Doctor, can you tell me who
15 sponsored this study?

16 A. Who sponsored the Schnatter study?

17 Q. Yes, sir.

18 A. Well, Dr. Schnatter works for
19 Exxon/Mobil so I would assume that it was
20 part of his job as an epidemiologist for
21 Exxon.

22 Q. Okay. Doctor, let's go to the Otto
23 Wong 1999 study.

24 A. Okay.

25 Q. Did they find a relationship for

1
2 benzene and multiple myeloma?

3 A. No, sir.

4 Q. Doctor, who sponsored this study?

5 A. I don't know the answer to that.

6 Q. Turn to Page 221, the last
7 paragraph.

8 MR. FARNET: Excuse me. What study
9 are we on?

10 THE DEPONENT: Wong, 1999.

11 MR. FARNET: Thank you.

12 A. The "We thank" -- let's see.

13 BY-MR.WILLIAMS:

14 Q. Yes, sir.

15 A. Thanking people --

16 Q. American --

17 A. -- at various universities --

18 Q. -- Institute --

19 THE REPORTER: Excuse me.

20 (Whereupon, a Discussion was held off
21 the record.)

22 A. I'm looking. So he's thanking lots
23 of people, reviews, thanks API for valuable
24 support and assistance, thanks some companies
25 for data, thanks NC -- National Center for

1
2 Health Statistics for information and the
3 API, the American Petroleum Institute for
4 sponsoring the project; there you go.

5 BY-MR.WILLIAMS:

6 Q. What are the names of those
7 companies, Doctor?

8 A. The name of the four participating
9 companies? Chevron --

10 Q. Yes, sir.

11 A. Chevron, Exxon, Mobil, and Shell.

12 Q. Okay. Doctor, could you go to the
13 Wong 2001 study, No. 51.

14 A. You know, apparently I can't. I
15 don't have a hard copy with me. Sorry.
16 That one slipped through the cracks.

17 Q. Do you know what the results were
18 for multiple myeloma in this study?

19 A. You know, hold on. I might have it
20 in one other binder. Okay. I'm getting
21 there. Okay. The abstract reads, "No
22 increase was detected for other leukemia cell
23 types, non-Hodgkin's lymphoma, or multiple
24 myeloma." You want the actual number?

25 Q. Actually, I'm looking at the

1
2 acknowledgments on the last page, and I'm
3 asking you to tell me, do you know who
4 sponsored this study?

5 A. Oh. You don't care about the
6 number? You just want to know who sponsored
7 it?

8 Q. I think you said there was no
9 increase in multiple myeloma.

10 A. Right.

11 Q. Just give me the number, too.

12 A. I'm looking. Well, he kind of lumps
13 them in, cancer of other lymphatic tissue.
14 And there's lots of ways of slicing it, but,
15 yeah, there's no -- maintenance, multiple
16 myeloma. So he's got the total cohort.
17 That's probably what you want. Total cohort
18 for multiple myeloma, 14 cases, expected
19 14.54. SMR of 96.3. 95 percent confidence
20 interval of 52.7 to 161.6. And who
21 sponsored --

22 Q. What did you say the relative risk
23 was, Doctor? I couldn't hear you.

24 A. Yeah. For the overall cohort --
25 this is on Page 395. I mean, there's lots

1
2 of ways of looking at it. But the total
3 cohort, the SMR was 96.3. 95 percent
4 confidence interval was 52.7 to 161.6.

5 Q. And again, my question is who
6 sponsored that study, Doctor?

7 A. I haven't gotten to the end yet so
8 that's where I was going; "and to Mobil
9 Corporation, now Exxon/Mobil, for sponsoring
10 the project."

11 Q. Thank you, Doctor. If you'd turn to
12 the Raabe study from 1998.

13 A. Raabe (pronouncing)?

14 Q. Raabe.

15 A. That's okay. He won't hear this.
16 1998, yes.

17 Q. And what were the results for
18 multiple myeloma in this case?

19 A. It looks like the overall results
20 were, the SMR was 121. 95 percent
21 confidence interval, 55 to 230.

22 Q. And Doctor, can you tell me who
23 sponsored this study?

24 A. He used to work for Mobil so I
25 would assume that that had something to do

1
2 with it. Yes, it --

3 Q. Does it say "Mobil Business Resource
4 Corporation" on the first page of the study?

5 A. Yeah. It doesn't say anything in
6 the acknowledgments. That's where he worked.
7 Yes. That's where --

8 Q. Fair enough. I'd like to direct you
9 to the Otto Wong study of 1997, and if you
10 could turn to Page 191.

11 A. Which number is that on my
12 citations?

13 MR. PERRY: You said '87 or '97?

14 THE DEPONENT: '97.

15 BY-MR.WILLIAMS:

16 Q. It's No. 42 in your reference list.

17 A. Oh, right, right, his meta-analysis.
18 Okay. Hang on.

19 Q. And I'm on Page 191, Table 1.

20 A. Okay. I'm getting there. Okay.

21 Q. Yes, sir. I believe this study
22 includes studies of refineries from Amoco,
23 Chevron, Exxon/Mobil, Shell, Texaco, Institute
24 of Petroleum UK, American Petroleum Institute,
25 and Australian Institute of Petroleum,

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2 Imperial Oil. Does that sound right to you?

3 A. That's Canadian, yeah. He looked at
4 UK refineries, Canadian refineries, and U.S.
5 refineries.

6 Q. Okay. And the studies he looked at
7 were studies prepared by these refineries,
8 correct?

9 A. I don't know that that's always the
10 case. I mean, it would be -- there could
11 be other investigators that were looking into
12 that refinery so I don't know what you mean
13 by "prepared by" the refinery.

14 Q. Studies sponsored or paid for by the
15 refineries.

16 A. I don't know. We would have to go
17 to each one of them. I'm sure some of them
18 are.

19 Q. Okay. Were any of these studies --
20 did they find a statistically significant
21 relationship or result for multiple myeloma
22 and benzene?

23 A. Were there any?

24 Q. Yes, sir, in Table 2.

25 A. No.

1
2 Q. Okay. Fair enough. Doctor, can you
3 point to one study in your references that
4 was published by any of the refineries --
5 well, let's say Shell -- that shows a
6 statistically significant result for benzene
7 and multiple myeloma?

8 A. The only statistically significant
9 result -- and by that I'm assuming you mean
10 positive -- for benzene and multiple myeloma
11 was the Goodyear facility published by Rinsky
12 in '87. So Shell didn't --

13 Q. That's not my question.

14 A. Shell didn't have --

15 Q. Can you point to a study that was
16 pertaining to a Shell facility with benzene
17 exposure where there is a statistically
18 significant result for benzene and multiple
19 myeloma?

20 A. No.

21 Q. What about Exxon?

22 A. No.

23 Q. What about Mobil?

24 A. No, sir.

25 Q. What about Chevron?

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A. I think the answer is no.

Q. What about the American Petroleum
Institute?

A. Well, the American Petroleum Institute
sponsors studies, but that's not a refinery.
So they may have had something to do with
many of these studies.

THE VIDEOGRAPHER: Mr. Williams, this
is Roger, the videographer. We have
approximately five minutes left on this tape.

MR. WILLIAMS: Thank you, sir.

BY-MR.WILLIAMS:

Q. Can you point to an American
Petroleum Institute study that shows a
statistically significant positive result for
multiple myeloma and benzene?

A. I don't know whether API had
anything to do with Rinsky's work or not.
That's the only statistically significant
study on multiple myeloma and benzene, the
first Rinsky paper, so that's it. Everything
else is going to be no. All of the other
studies that looked at benzene and multiple
myeloma, the answer is going to be no, there

1
2 aren't any.

3 Q. Doctor, let's go back to the 1977
4 Shell study authored by Dr. Joiner and Dr.
5 Stallone.

6 MR. PERRY: Object to form.

7 BY-MR.WILLIAMS:

8 Q. There were four cases of multiple
9 myeloma in 1976 alone. Dr. Joiner's
10 testified at the OSHA benzene emergency
11 standard hearings that there were 30,000
12 employees. Would that give a relative risk
13 above 2.0 for that study?

14 A. I couldn't answer that, sitting here.
15 That's a question that an epidemiologist
16 could do relatively straightforward based on
17 demographics of the population of 30,000,
18 race and age and other things. But I can't
19 do it just sitting here.

20 Q. Well, would that produce an increased
21 number of cases of myeloma, in your opinion?

22 A. There's no way to know that.

23 Q. Okay. Let me ask you one final
24 question, Doctor. I'm going to give you a
25 worst case scenario. A guy swims in a pool

1
2 full of benzene for 30 years, eight hours a
3 day. Could he under any circumstances
4 contract multiple myeloma?

5 A. I think the scientific literature
6 that we've been discussing and much of it
7 that we didn't discuss would say the answer
8 to that is no.

9 Q. I'm asking you for your opinion.

10 A. That is my opinion.

11 Q. Okay.

12 A. My opinion is based on the
13 scientific literature that we discussed and
14 much of it that we didn't, and that
15 supported opinion is no.

16 Q. Doctor, how many studies do you
17 think there are that analyze or provide a
18 statistical result for benzene and multiple
19 myeloma?

20 A. I think we kind of went through that
21 list, but I don't know off the top of my
22 head. I'd have to go through and look at
23 them; maybe 10.

24 Q. Certainly not 60; would you agree
25 with that?

1
2 A. Not that -- not that you would be
3 able to say, This is just a benzene study.
4 But the refinery studies where they've
5 quantitated benzene exposures in their workers
6 and then calculated relative risk or SMRs for
7 multiple myeloma, that counts. I think that
8 is a legitimate piece of data that is
9 relevant to this question. So the bracket
10 that you're putting around the counting I'm
11 not totally clear on. But no, I don't think
12 it would be 60.

13 Q. Would it be 30?

14 A. Well, you know, 32, 64? I'd have
15 to go through and count them. I don't know
16 the exact number, but there's a lot. This
17 is not --

18 MR. WILLIAMS: Okay. Thank you,
19 Doctor. I don't have any other questions at
20 this time.

21 MR. PERRY: Let's take a quick
22 break.

23 MR. WILLIAMS: Okay.

24 MR. FARNET: Let's take a break,
25 Eric. We'll be back in about --

1
2 THE VIDEOGRAPHER: We are off the
3 record at approximately 11:22. This is the
4 end of Tape No. 2 in the deposition of David
5 Pyatt.

6 (Whereupon, a Recess from 11:22 a.m.
7 to 11:33 a.m.)

8 THE VIDEOGRAPHER: We are back on
9 the record at approximately 11:33. This is
10 the beginning of Tape No. 3 in the
11 deposition of David Pyatt.

12 EXAMINATION

13 BY-MR.FARNET:

14 Q. Dr. Pyatt, this is Glenn Farnet. I
15 just have two questions to clarify some
16 terminology. You were asked about Study No.
17 51 in your report, which is the Wong 2001
18 study, and you were asked what the SMR was
19 reported for multiple myeloma. Do you recall
20 that?

21 A. Yes.

22 Q. And I believe you said that there
23 was an SMR of 96.3 with a 95 percent
24 confidence interval of 52.7 to 161.6,
25 correct?

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A. Correct.

Q. Could you explain whether or not that is an elevated risk or a statistically significant result?

A. No, it's not. I mean, the issue is with an SMR you take the risk ratio, which is the observed over the expected, and you multiply it by a hundred. So an SMR of 96 is the same as a risk ratio or a relative risk of 0.96. So it's a little confusing if you don't understand what the epidemiologists do to report it as a standardized mortality ratio. But it's not 96. It's .96. So the confidence interval would be 0.52 to 1.61, and that is not an elevated risk, and it is not statistically significant.

Q. And would the same be true for the results you discussed regarding Raabe, 1998, where you listed an SMR of 121 with a confidence interval of 55 through 230?

A. Sure. I mean, with an SMR of 121, that's a relative risk or a risk ratio of 1.21. So again, that is not meaningfully elevated. And the 95 percent confidence

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2 interval is .0.55 to 2.30, based on -- you
3 divide these by a hundred to get it back to
4 a risk ratio.

5 MR. FARNET: Thank you, Dr. Pyatt.
6 All right. That's all the questions we
7 have.

8 MR. WILLIAMS: Anybody else?

9 MR. RILEY: Yes. This is Jim
10 Riley.

11 (Whereupon, a Discussion was held off
12 the record.)

13 EXAMINATION

14 BY-MR.RILEY:

15 Q. Dr. Pyatt, you mentioned earlier a
16 supplemental declaration. Is that the
17 supplemental declaration that you authored in
18 response to a plaintiffs' motion?

19 A. Correct.

20 Q. And are the statements contained in
21 the supplemental declaration truthful, and do
22 they accurately express your views?

23 A. Yes, sir.

24 Q. I'd like that attached as an Exhibit
25 to the deposition, and that's all the

1
2 questions I have. Thank you, sir.

3 A. You're welcome.

4 (Whereupon, Exhibit-11 was marked.)

5 MR. WILLIAMS: Okay.

6 THE VIDEOGRAPHER: This concludes the
7 videotape deposition. We are off the record
8 at approximately 11:37. This is the end of
9 Tape No. 3 in the deposition of David Pyatt.

10 (Whereupon, The following proceedings
11 were not on the video record.)

12 MR. RILEY: I just want the record
13 to note that I advised Mr. Williams and also
14 Dr. Pyatt, who did not know, that Radiator
15 was a co-defendant in the Brown case. I
16 just didn't want counsel to be misled or the
17 doctor to be misled.

18 (Whereupon, a Discussion was held off
19 the record.)

20 THE DEPONENT: I'll read and sign.

21 (Whereupon, the deposition concluded
22 at 11:39 a.m., June 24, 2009.)
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24
25

1
2 REPORTER'S CERTIFICATE

3 STATE OF COLORADO)

4 COUNTY OF DENVER)

5 I, Janet Lee Priestley, do hereby
6 certify that I am a Registered Professional
7 Reporter and Notary Public within the State
8 of Colorado; that previous to the
9 commencement of the examination, the deponent
10 was duly sworn to testify to the truth.

11 I further certify that this
12 deposition was taken in shorthand by me at
13 the time and place herein set forth, that it
14 was thereafter reduced to typewritten form,
15 and that the foregoing constitutes a true and
16 correct transcript.

17 I further certify that I am not
18 related to, employed by, nor of counsel for
19 any of the parties or attorneys herein, nor
20 otherwise interested in the result of the
21 within action.

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24 Janet Lee Priestley
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. CERTIFICATE
STATE OF :
COUNTY/CITY OF :
Before me, this day, personally
appeared, DAVID PYATT, who, being duly sworn,
states that the foregoing transcript of
his/her Deposition, taken in the matter, on
the date, and at the time and place set out
on the title page hereof, constitutes a true
and accurate transcript of said deposition.

DAVID PYATT
. SUBSCRIBED and SWORN to before me this
day of , 2009 in the
jurisdiction aforesaid.

My Commission Expires Notary Public
. . .
. . .

1
2 . DEPOSITION ERRATA SHEET3 .
4 RE: Accurate Court Reporting, Inc.

5 Case Caption: JO ANN BISHOP, ET AL

6 VS. SHELL OIL CO., ET AL

7 .
8 DEPONENT: DAVID PYATT

9 DEPOSITION DATE: June 24, 2009

10 .
11 To the Reporter:

12 I have read the entire transcript of my
13 Deposition taken in the captioned matter or the
14 same has been read to me. I request that the
15 following changes be entered upon the record for
16 the reasons indicated. I have signed my name
17 to the Errata Sheet and the appropriate
18 Certificate and authorize you to attach both to
19 the original transcript.

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SIGNATURE : _____ DATE : _____

DAVID PYATT