

Exhibit 597

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA
SOUTHERN DIVISION
No. 7:23-CV-00897

IN RE:

CAMP LEJEUNE WATER LITIGATION

This Document Relates to:

ALL CASES

VIDEO-RECORDED EXPERT DEPOSITION OF
ARMINE K. SMITH, MD

Wednesday, July 2, 2025

10:09 AM EST

Reported by: Denise Dobner Vickery, CRR, RMR
JOB NO.: 7403097

Wednesday, July 2, 2025

10:09 AM EST

Video-Recorded Expert Deposition of
ARMINE K. SMITH, MD, held at the offices of:

KELLER POSTMAN
1101 Connecticut Avenue NW
Suite 1100
Washington, DC 20036

Pursuant to notice, before Denise
Dobner Vickery, Certified Realtime Reporter,
Registered Merit Reporter, and Notary Public in
and for the District of Columbia.

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P R O C E E D I N G S

- - -

THE VIDEOGRAPHER: We are now
on the record.

My name is Deshawn White. I'm
a videographer for Golkow a Veritext
division. Today's date is July 2, 2025.

This video deposition is being
held at 1101 Connecticut Avenue,
Northwest, Washington, DC in the matter
of Camp Lejeune Water Litigation versus
United States of America in the United
States District Court for the Eastern
District of North Carolina.

The deponent is Dr. Armine
Smith.

And the court reporter is
Denise Vickery.

Will counsel please identify
themselves for the record, followed by
the court reporter administering the
oath.

MR. WHITE: Lucas White for
the Department of Justice and with me are

1 my colleagues, Josh Carpenito and Grace
2 DeBoer.

3 MR. MANDELL: Zachary Mandell
4 for Plaintiffs Leadership Group.

5 - - -

6 ARMINE K. SMITH, MD
7 called for examination, and, after having been
8 duly sworn, was examined and testified as
9 follows:

10 - - -

11 EXAMINATION

12 - - -

13 BY MR. WHITE:

14 Q. Good morning, Dr. Smith. My name is
15 Luke White. We met very briefly before going on
16 the record.

17 If you could please state and spell
18 your full name for the record.

19 A. Armine A-r-m-i-n-e Smith S-m-i-t-h.

20 Q. Okay. Have you ever been deposed
21 before?

22 A. Yes.

23 Q. Okay. How many times?

24 A. Probably five, maybe a few more.

1 Q. Okay. Were any of these in your
2 personal capacity?

3 A. Twice in personal capacity, yes.

4 Q. Okay. Were the remainder of these
5 as an expert witness?

6 A. Yes.

7 Q. Okay. We'll come back to that, but
8 given that you've testified before, a lot of this
9 is probably old hat. So I'll try to give you the
10 abridged version.

11 You're under oath today to tell the
12 truth, just as if you would in -- in trial.

13 Is there any reason why you can't do
14 that today, like memory impairing medication or
15 substances?

16 A. No reasons.

17 Q. Okay. The court reporter is writing
18 everything that we say down on paper, and to make
19 her job easier, we should try to keep our verbal
20 pace at a reasonable clip. Verbal answers are
21 needed. Uh-huhs and huh-uhs and head nods and
22 shakes are very hard to put on paper.

23 We -- this one is trickier than it
24 sounds, but we should be very careful not to speak

1 over one another. I will do my best to let you
2 finish your answer before I begin my next
3 question. If I cut you off, I assure you it is
4 not intentional. So please just let me know, and
5 I'll shut up and you can finish your answer.

6 And if you could let me finish my
7 complete question before you begin your answer,
8 just to avoid crosstalk, and it makes the court
9 reporter's job a lot easier.

10 If you don't understand one of my
11 questions, please ask me to clarify it, and I'd be
12 happy to do so as best as I can. But if you don't
13 ask me to clarify the question, we'll all assume
14 later that you weren't confused.

15 Does that make sense?

16 A. Makes sense.

17 Q. Okay. This is not an endurance
18 competition. So if you need to take a break at
19 any point for any reason at all or no reason at
20 all, that's perfectly fine. Just let me know, and
21 we can do that.

22 And I will try to take a break maybe
23 every hour-ish or so, but I'm really bad at
24 forgetting to do that. So if I forget and you

1 want a break, please speak up.

2 My only ask is that you finish
3 whatever question is on the table before we take a
4 break. So question, answer, break. Not question,
5 break, then answer.

6 Does that make sense?

7 A. Makes sense.

8 Q. All right. One last thing. After
9 certain questions, you'll probably hear
10 Mr. Mandell say "objection." That's just fine.
11 Let him state his objection on the record, and
12 then we'll proceed with answering the question.

13 The exception is if he directs you
14 not to answer a question based on a claim of
15 privilege, but I don't think we'll be getting into
16 that today.

17 All right?

18 A. Sounds good.

19 Q. You said that you were deposed --
20 been deposed about five times, maybe a couple
21 more.

22 Two in your personal capacity, two
23 as an expert or the remainder as an expert; is
24 that correct?

1 A. That's correct.

2 Q. Okay. Can you tell me about the two
3 depositions that were in your personal capacity?

4 A. Family matter, divorce.

5 Q. Okay. Both of them?

6 A. Yes.

7 Q. Okay. Did you end up testifying at
8 a trial or hearing or just over depo?

9 A. For my personal? For my -- for my
10 divorce?

11 Q. Yes.

12 A. Went to trial once, yes.

13 Q. Okay. Cool.

14 On -- and then probably three to
15 five more times as an expert witness; is that
16 correct?

17 A. That sounds right.

18 Q. Okay. Did you ever testify in trial
19 as an expert witness?

20 A. I have once.

21 Q. Okay. Was it jury trial or bench
22 trial?

23 A. It was a jury trial.

24 Q. Okay. Do you know -- remember where

1 it was?

2 A. New York.

3 Q. New York City or state?

4 A. It was New York City.

5 Q. Okay. Of the times that you've
6 testified in depositions as an expert witness, as
7 best you can recall, how many times were for the
8 plaintiffs and how many times were for the
9 defense?

10 A. I believe once was for defense and
11 the rest were for plaintiffs.

12 Q. Okay. Okay. We'll get into those a
13 little bit more as we go along.

14 But to start off, how did you
15 prepare for today's deposition?

16 A. Do you mean past week? Past month?
17 Past year?

18 Q. This is fair. This is fair.

19 In the past, how did you prepare for
20 today's deposition in the past month? For
21 example, did you speak with an attorney?

22 I don't want to know the substance
23 of any conversations, but that you spoke to an
24 attorney, one of the attorneys for PLG would be --

1 would be a part of the preparation that I'm asking
2 about.

3 A. Yes, I spoke with the attorneys in
4 the past month.

5 Q. Okay. How many times?

6 A. Three times, I think.

7 MR. MANDELL: I can't answer.

8 THE WITNESS: Okay. But I
9 think -- I think three times.

10 BY MR. WHITE:

11 Q. Okay. Were all three of those times
12 with Mr. Mandell?

13 A. With Mr. Mandell and once with the
14 other Mr. Mandell.

15 Q. Okay. That's going to get
16 confusing. I'll try to my best to -- to make it
17 clear.

18 A. (Laugh).

19 Q. Did anybody else participate in
20 these meetings and then the Messrs. Mandell?

21 A. No.

22 Q. Okay. How long were each of these
23 meetings, roughly?

24 A. One hour and then two-hour.

1 Q. Okay. Were these by
2 videoconference? Were these in person?

3 A. Two were video, once was in person.

4 Q. Okay. The one that was in person,
5 has that been in the past day or so leading up to
6 this deposition?

7 A. Yesterday.

8 Q. Okay. Okay. Did you look at any
9 documents when you were speaking to the Messrs.
10 Mandell?

11 MR. MANDELL: I'm going to
12 object and just instruct you not to
13 answer as to anything we talked about.
14 So with that caveat.

15 MR. WHITE: Yeah, understood.
16 Absolutely.

17 BY MR. WHITE:

18 Q. At no point do I want to know the
19 substance of your conversations with either of the
20 Messrs. Mandell, but to the extent you talked
21 about any or did you look at any documents?

22 A. I've glanced over my reports.

23 Q. Okay. Can you recall any other
24 documents?

1 A. And I believe a couple of the
2 articles that I cited in my reports.

3 Q. Okay. Can you recall any other
4 documents?

5 A. Can't recall anything else.

6 Q. Okay. Can you recall which articles
7 you cited in your reports that you looked over in
8 your preparation for today's deposition?

9 A. I've looked at potentially three
10 maybe articles.

11 Q. Okay.

12 A. One was Bove. Actually, two -- one
13 was Bove. The other one was Aschgar maybe. I'd
14 have to look at the names and then I can really
15 tell you.

16 Q. Does Aschengrau sound --

17 A. Aschengrau. That's the one.

18 Q. Okay I may be mispronouncing that,
19 but as long as we have the same
20 mispronunciation --

21 A. Yes. Yes.

22 Q. -- I think we'll be on the same
23 page.

24 A. Yes.

1 Q. Okay. Can you recall what the third
2 one was?

3 A. Third one was another Bove article.

4 Q. Okay. Do you recall which
5 particular Bove, or Bove, articles this was?

6 A. 2014.

7 Q. Okay. Both of the 2014s?

8 A. Yes.

9 Q. Okay. Have you talked, spoken with
10 or had written communication with any of the other
11 experts for PLG?

12 And I will add the same caveat that
13 I added before, and I'm sure Mr. Mandell would
14 say, I don't want to know the substance of any of
15 those conversations. I just want to know if any
16 occurred.

17 A. That's easy. No.

18 Q. Okay. Cool.

19 Have you spoken with anybody else to
20 prepare or about -- to prepare for or about your
21 deposition today?

22 A. No.

23 MR. MANDELL: I'm going to
24 object, but you can answer.

1 THE WITNESS: Oh.

2 MR. MANDELL: That's okay.

3 Just give me a second to object if you
4 can.

5 THE WITNESS: Okay.

6 BY MR. WHITE:

7 Q. Have you ever communicated in
8 writing with any of the other experts in this
9 case?

10 A. No.

11 MR. WHITE: Okay. At this
12 point, I want to go ahead and enter a few
13 exhibits that we'll be referencing
14 throughout the case.

15 (Document marked for
16 identification as Exhibit 1.)

17 BY MR. WHITE:

18 Q. I'm going to hand you what's been
19 marked as Exhibit 1.

20 Is this the report you wrote for
21 Mrs. Tukes?

22 A. Yes. In addition, there are a
23 couple of other documents attached to the back of
24 it.

1 Q. Okay. Does that include your CV?

2 A. Yes.

3 Q. And your testimony history?

4 A. Yes.

5 Q. Okay.

6 (Document marked for
7 identification as Exhibit 2.)

8 BY MR. WHITE:

9 Q. I'm going to hand you what's been
10 marked as Exhibit 2.

11 And if you can just keep those
12 stacked in front of you, we'll be coming
13 back -- back to and from each one as we go along.

14 A. Yes.

15 Q. Is that your report that you wrote
16 for Mr. Howard?

17 A. Yes, and then also my CV and some
18 other papers.

19 Q. Okay.

20 A. Compensation.

21 Q. Okay.

22 (Document marked for
23 identification as Exhibit 3.)

24 BY MR. WHITE:

1 Q. And I hand you what's been marked as
2 Exhibit 3.

3 Is this your -- the report that you
4 wrote for Mr. Mousser in this case?

5 A. Yes.

6 Q. Including the same papers there at
7 the back?

8 A. Yes.

9 Q. All right.

10 (Document marked for
11 identification as Exhibit 4.)

12 BY MR. WHITE:

13 Q. Hand you what's been marked as
14 Exhibit 4.

15 Is that the rebuttal report that
16 you've written in this case?

17 A. Yes.

18 Q. Okay. And that relates to
19 Mrs. Tukes, Mr. Howard, and Mrs. -- Mrs. Tukes,
20 Mr. Howard, and Mr. Mousser, correct?

21 A. (Reviews document.)

22 I am quoting Tukes and Howard here.

23 Q. Okay. Okay. Oh, and you also had
24 a -- I don't have a copy with me.

1 You also had a supplemental report
2 that you wrote for Mr. Mousser's case; is that
3 correct?

4 A. Yes.

5 Q. Okay.

6 (Document marked for
7 identification as Exhibit 5.)

8 BY MR. WHITE:

9 Q. I'm going to hand you what's been
10 marked as Exhibit 5.

11 Is this an errata correction sheet
12 that you submitted for the Howard, Mousser, and
13 Tukes reports?

14 A. Yes.

15 Q. Okay. I will come back to these
16 each as we go through the deposition, but I wanted
17 to make them exhibits just starting out.

18 Do these reports and the Mousser
19 supplemental report that you submitted, do these
20 contain all the opinions that you plan on offering
21 in this case?

22 A. Yes.

23 Q. Okay. In forming your opinions in
24 this case at any point, did you talk verbally, in

1 writing, by any means, with any of the other
2 experts in the case?

3 A. Can you repeat it, please?

4 Q. Sure.

5 In forming your opinions in this
6 case, did you communicate either in writing,
7 orally, verbally or any other means, did you
8 communicate with any of the other plaintiffs'
9 experts in this case?

10 A. No.

11 Q. Okay. Did you communicate in
12 forming your opinions in this case with anyone
13 other than the attorneys or the experts?

14 A. No.

15 Q. Okay.

16 MR. MANDELL: I'm going to
17 object to that but...

18 BY MR. WHITE:

19 Q. Okay. Did you ever communicate with
20 Mr. Howard?

21 A. No.

22 Q. Mr. Mousser?

23 A. No.

24 Q. I take it neither Ms. Tukes?

1 A. Correct.

2 Q. Okay. So none of their family
3 members or friends or coworkers?

4 A. No.

5 Q. Okay. I take it you've never spoken
6 to any of their employers or medical providers?

7 A. No.

8 Q. Okay. Have you spoken to any other
9 plaintiffs in the case?

10 A. No.

11 Q. Okay. How did you first become
12 aware of the Camp Lejeune litigation?

13 A. I believe it was when I was
14 contacted by the attorneys.

15 Q. Okay. When were you first contacted
16 by the attorneys about this litigation?

17 A. I can't recall exactly.

18 Q. Okay.

19 A. It was a while ago.

20 Q. Is it sometime in 2024 or 2023? One
21 of those years?

22 A. Yes.

23 Q. Okay. Would it be in 2024?

24 A. I honestly can't recall.

1 Q. Okay. Okay. Who first reached out
2 to you about working on this -- on this case?

3 And I don't want to know the
4 substance of the communication, just the attorney
5 who first reached out to you.

6 A. So first I was reached, yeah, the
7 person who reached out to me or the company that
8 reached out to me is this Expert Witness Network.

9 Q. Okay. Have you worked with the
10 Expert Witness Network before?

11 A. Yes.

12 Q. Okay. Do you do all of your expert
13 witness work through that network?

14 A. Most of it.

15 Q. Okay. When did you -- so that's
16 when you were first communicated to, someone first
17 reached out to you about the case.

18 When did you become formally
19 retained as an expert in this litigation?

20 A. It was shortly thereafter.

21 MR. MANDELL: Objection.

22 BY MR. WHITE:

23 Q. Okay. Who retained you? Was it a
24 specific law firm?

1 A. Mandell's law firm.

2 Q. Okay. He's not going to be able to
3 help you with the questions. He's not trying to
4 be rude.

5 A. (Laugh).

6 MR. MANDELL: Just whatever
7 your best answer is.

8 THE WITNESS: Okay.

9 BY MR. WHITE:

10 Q. As best as you can remember. That's
11 all we can do today.

12 A. Okay.

13 Q. Did you execute a retainer
14 agreement?

15 A. I actually don't recall if it's a
16 standard retainer agreement through that Expert
17 Witness or it's a separate one with them.

18 Q. Okay. Okay. Did you perform any
19 work on the Camp Lejeune case before
20 becoming -- before signing the agreement?

21 MR. MANDELL: Objection.

22 THE WITNESS: No. Oh.

23 MR. MANDELL: That's okay.

24 BY MR. WHITE:

1 Q. Just to make it clear, the answer
2 was no?

3 A. No.

4 Q. Okay. What was your assignment in
5 this matter?

6 MR. MANDELL: Objection.

7 And I would instruct you not
8 to answer as to any communications
9 between any of the attorneys and
10 yourself, but other than that, you can
11 answer if you can.

12 THE WITNESS: My role was to
13 analyze the facts and patient materials
14 and serve as expert witness.

15 BY MR. WHITE:

16 Q. Uh-huh. Was it just for these three
17 plaintiffs?

18 MR. MANDELL: I'm going to
19 object and instruct you not to answer as
20 to any other work that you would have
21 done on other aspects of this case.

22 I think me and -- we've talked
23 about this with -- I don't want to say
24 too much, but I'm going to object and

1 instruct you not to answer as to anything
2 other than these three plaintiffs.

3 MR. WHITE: Okay.

4 BY MR. WHITE:

5 Q. What are your -- what are you
6 charging for your work on this case?

7 A. It's an hourly fee.

8 Q. Okay.

9 A. May I say that? Is that okay to
10 say?

11 MR. MANDELL: Yeah.

12 THE WITNESS: Okay.

13 I can't recall if it's 650 or
14 750. I think it's 650.

15 BY MR. WHITE:

16 Q. 650. Okay.

17 A. Inflation has changed that.

18 Q. I was in private practice. I know
19 all about that.

20 Does any part of any fee go to the
21 expert witness service? Are you aware of any part
22 of the fee going to the expert witness service?

23 A. Not that I'm aware.

24 Q. Okay. Is it a flat hourly fee?

1 A. I charge more for deposition than
2 for review of records.

3 Q. Okay. And what is your deposition
4 rate?

5 A. So I think the deposition is 750.

6 Q. Okay. And is that the same 750 that
7 would be charged for trial?

8 A. For trial I have a flat rate for a
9 whole day.

10 Q. Okay. So everything else would be
11 650 an hour?

12 A. I believe so.

13 Q. Okay. Is this your standard hourly
14 rate?

15 A. Yes.

16 Q. Okay.

17 (Document marked for
18 identification as Exhibit 6.)

19 BY MR. WHITE:

20 Q. I'm going to hand you what's been
21 marked as Exhibit 6.

22 (Document marked for
23 identification as Exhibit 7.)

24 BY MR. WHITE:

1 Q. And then there will be an Exhibit 7
2 as well. Here you go.

3 All right. Do you recognize these
4 two documents in front of you, Exhibit 6 and 7?

5 A. Yes.

6 Q. Okay. Are they the invoices for
7 your work on this case?

8 A. Yes.

9 Q. Are these the only two invoices
10 you've sent on this case so far?

11 A. I believe so.

12 Q. Okay. Up at the top underneath your
13 tax ID, I see Invoice #24 and #25.

14 Do you number your invoices
15 sequentially across different cases?

16 A. So these are all invoices that come
17 to this tax ID.

18 Q. Okay.

19 A. If that makes sense.

20 Q. Okay. I'm just curious. Because
21 the earliest of these two invoices is dated
22 December 18, 2024 and it says Invoice #24.

23 I'm just trying to make sure that
24 there's not an invoice -- invoices 1 through 23.

1 A. Not to this case.

2 Q. Okay. That was my question.

3 A. Okay.

4 Q. Thank you. That was a better way of
5 framing it that I should have started with.

6 A. Okay.

7 Q. Thank you, Doctor.

8 The date on this first one says
9 December 18, 2024.

10 Does that refresh your recollection
11 about when you may have first become retained on
12 this case?

13 A. Yes. It must have been shortly
14 before that.

15 Q. Okay. So probably like
16 November/December of 2024?

17 MR. MANDELL: Objection.

18 You can answer.

19 THE WITNESS: I honestly
20 don't recall.

21 BY MR. WHITE:

22 Q. Okay. Okay. I -- I see a "Paid"
23 stamp on both of these, in the top right-hand
24 corner of Exhibit -- of the March 2, 2025 one and

1 then in the middle of the December 18, 2024 one.

2 Is that -- is that your stamp?

3 A. No.

4 Q. Okay. But everything else on these
5 two invoices you -- you prepared?

6 A. Yes.

7 Q. Okay. Do these two invoices reflect
8 the total amount of work that you have billed for
9 thus far in this case?

10 A. Yes.

11 Q. Okay. Do you expect to send another
12 invoice out soon following this deposition?

13 A. Yes.

14 Q. Okay. Is there any difference
15 between any of the amounts that you've billed for
16 and the amounts that you've ultimately received
17 payment for?

18 A. No.

19 Q. Okay.

20 A. It was paid as -- as billed.

21 Q. Okay. Other than forthcoming
22 invoices for today's deposition, do you expect any
23 other compensation in the future from this case?

24 A. No.

1 MR. MANDELL: Ah. That's
2 okay.

3 BY MR. WHITE:

4 Q. When did you first get into expert
5 work?

6 A. I can't say precisely, but it's been
7 multiple years.

8 Q. Okay. I know you've testified
9 -- you said earlier you've testified in maybe
10 three to five cases as an expert witness.

11 How many cases in total have you
12 served as an expert in, including those in which
13 you may not have testified at a deposition?

14 A. It will be a very rough estimate
15 because I can't recall, but probably between 20,
16 25.

17 Q. Okay. Okay. If you had to -- and,
18 of course, this is also a rough estimate, and for
19 these kinds of questions that's all I'm -- that's
20 all I'm looking for here because, you know, we can
21 only go off the best of your recollection.

22 But what is the general split
23 between plaintiff side and defense side of
24 those -- of those expert engagements?

1 A. It's mostly plaintiff.

2 Q. Okay. If you had to give a
3 percentage on it, again understanding this is
4 rough math, what percentage would be plaintiffs?

5 MR. MANDELL: I'm going to
6 object, but you can answer.

7 THE WITNESS: Possibly 75 to
8 80 percent plaintiff.

9 BY MR. WHITE:

10 Q. Okay. Okay. Are these -- how many
11 of these were medical malpractice cases?

12 A. All of them.

13 Q. All of them? Okay.

14 Is this your first time testifying
15 in a case about a toxic exposure?

16 A. I believe so.

17 Q. Okay. How many open expert
18 engagements do you have right now?

19 A. I don't know what that means by
20 "open."

21 Q. Sure. I'm sorry.

22 How many -- as it stands today, do
23 you know how many cases in which you are
24 identified as an expert witness?

1 The Camp Lejeune litigation would be
2 one.

3 Are you working on any other pieces
4 of litigation right now as an expert witness?

5 A. I am. I can't tell you exactly how
6 many.

7 Q. Okay. Over/under five?

8 A. Probably five.

9 Q. Okay. Okay. And I'm only looking
10 for a rough number here, and I'm not going to ask
11 your total annual income or anything.

12 But roughly speaking, what
13 percentage of your annual income would be from
14 expert work?

15 MR. MANDELL: I'm going to
16 object, but you can answer.

17 THE WITNESS: Say less than 5
18 percent.

19 BY MR. WHITE:

20 Q. Okay. Okay. Have you ever done any
21 expert work for the Bell Legal Group?

22 A. I cannot recall.

23 Q. Okay. Beyond -- beyond this case.
24 Do you recall doing any expert work

1 beyond Camp Lejeune for Keller Postman?

2 A. No.

3 Q. Okay. How about same question but
4 for Lief Cabraser?

5 A. No.

6 Q. Okay. Same question but for the
7 Dowling law firm?

8 A. No.

9 Q. Same question but for Weitz &
10 Luxenberg?

11 A. No.

12 Q. Okay. Same question but for Wallace
13 & Graham?

14 A. No.

15 Q. Same question but for Lewis &
16 Roberts?

17 A. No.

18 Q. Same question but for Mr. Mandell's
19 firm?

20 A. I'm sorry. Other than this?

21 Q. Yes, other than Camp Lejeune.

22 A. No, I have not.

23 Q. Okay. Thank you. And thank you for
24 that clarification.

1 At any point you need -- you need
2 clarification on my question, just -- just say so
3 and I'm happy to do as best as I possibly can.

4 Okay?

5 A. Okay.

6 Q. Have you ever testified -- have you
7 ever served as an expert witness in a case on
8 behalf of the United States as a -- as a party?

9 A. Do you mean as plaintiff or?

10 Q. I'm -- I'm sorry.

11 Have you ever testified in a case
12 where the party who hired you as an expert was the
13 United States?

14 A. No.

15 Q. Okay. Have you ever testified in a
16 case where the party who hired you was suing the
17 United States?

18 A. There was one case against VA
19 doctor.

20 Q. Okay. Was that a medical
21 malpractice case?

22 A. Yes.

23 Q. Okay. Do you remember where that
24 was?

1 A. I don't. I think it went to federal
2 court, but I don't remember where.

3 Q. Okay. When, roughly speaking, was
4 that?

5 A. It's got to be at least three years
6 ago.

7 Q. Okay. Did you write a report?

8 A. I believe so, yes.

9 Q. Okay. Did you testify in
10 deposition?

11 A. I don't think it went to deposition.

12 Q. Okay. I take it that you didn't
13 testify at trial then?

14 A. No.

15 Q. Okay. Was that a kidney cancer
16 case?

17 A. No.

18 Q. Okay. Was it a bladder cancer case?

19 A. No.

20 Q. What kind of -- what was the
21 underlying medical condition that gave rise to the
22 medical malpractice case?

23 MR. MANDELL: I would just
24 instruct you that if you -- if the case

1 is ongoing and you're not disclosed in
2 the case, then I wouldn't answer that,
3 but if it's anything other than that, you
4 can generally say.

5 THE WITNESS: I think the
6 case is closed. It was a prostate
7 cancer.

8 BY MR. WHITE:

9 Q. Okay. Okay. Have you ever
10 testified in a case -- in a malpractice case
11 regarding kidney cancer?

12 A. Yes.

13 Oh, I'm sorry. Testified or letter?

14 Q. I'm sorry. That's a good
15 clarification.

16 Have you ever written a report in a
17 case involving kidney cancer?

18 A. Yes.

19 Q. Okay. How many of your expert cases
20 were involving kidney cancer?

21 A. I can recall at least three.

22 Q. Okay. Were these -- were these
23 misdiagnosis cases?

24 A. Yes.

1 Q. Okay. Were there any other -- I'm
2 just trying to get a feel for what kind of cases
3 these were.

4 Were all three cases dealing with
5 misdiagnosis of kidney cancer?

6 A. No.

7 Q. Okay. Were two of them related to
8 misdiagnosis of kidney cancer?

9 A. One.

10 Q. One of them was.

11 What were the other two?

12 A. Just mismanagement.

13 Q. Okay. Okay. How about testifying
14 in cases about bladder cancer?

15 A. I have.

16 Q. Okay. How many?

17 A. The court testimony was about
18 bladder cancer.

19 Q. Okay. How many times have you
20 written an expert report about bladder cancer?

21 A. It's been a few. Maybe three or
22 four.

23 Q. Okay. How many of these were
24 misdiagnosis cases?

1 A. At least one.

2 Q. Okay. How many were mismanagement
3 cases?

4 A. The rest.

5 Q. Okay. Okay. Were any of these
6 cases about upper tract urothelial cancer
7 specifically?

8 A. Yes.

9 Q. Okay. How many?

10 A. One.

11 Q. One of them? Okay.

12 In forming your opinions in this
13 case, did you use any support staff?

14 A. No.

15 Q. Okay. By "support staff" I mean
16 assistants or scribes, researchers or anyone to do
17 calculations.

18 You did not use any staff along
19 those lines?

20 A. No.

21 Q. Okay. How often do you send
22 invoices for your expert work?

23 A. Not frequently enough, as you can
24 see. When I think about it.

1 Q. When -- when it starts to accumulate
2 and it's time to send one out?

3 A. Correct. Yes.

4 MR. MANDELL: Objection.

5 BY MR. WHITE:

6 Q. Okay. Okay.

7 A. Off -- off the record.

8 Q. Yeah.

9 MR. MANDELL: You want to go
10 off the record?

11 THE WITNESS: I just want to
12 make a joke.

13 I think I need to send you an
14 invoice with all this invoice
15 conversation. Unless you've spoken.

16 MR. WHITE: I'm sorry, Zack.

17 MR. MANDELL: It's okay.

18 BY MR. WHITE:

19 Q. Okay. We can go off the record or
20 take a break if you want.

21 A. We can take a break.

22 Q. Okay.

23 MR. MANDELL: Whatever you
24 want to do.

1 THE WITNESS: A water break.

2 MR. WHITE: I can take a
3 break.

4 THE VIDEOGRAPHER: Time is
5 10:42 AM. Off the record.

6 (A recess was taken.)

7 THE VIDEOGRAPHER: The time is
8 10:50 AM. We are now on the record.

9 MR. WHITE: All right. Thank
10 you, Deshawn.

11 BY MR. WHITE:

12 Q. We're back after a short break.
13 While we were on a short break, did you talk to
14 anybody about the substance of your testimony
15 today?

16 A. No.

17 MR. WHITE: Okay. I'm going
18 to do a mass submission of -- of exhibits
19 here.

20 (Document marked for
21 identification as Exhibit 8.)

22 BY MR. WHITE:

23 Q. I'm going to hand you what's been
24 marked as Exhibit 8.

1 Is that the Materials Considered
2 List for your report on Mrs. Tukes?

3 A. Yes.

4 Q. Okay.

5 (Document marked for
6 identification as Exhibit 9.)

7 BY MR. WHITE:

8 Q. I'm going to hand you what's been
9 marked as plaintiffs' -- as Government's
10 Exhibit 9.

11 Is that your Materials Considered
12 List for your report on Mr. Howard?

13 A. Yes.

14 Q. Okay.

15 (Document marked for
16 identification as Exhibit 10.)

17 BY MR. WHITE:

18 Q. I think you can imagine what's
19 coming next. Here's Exhibit 10.

20 Is that your Materials Considered
21 List for your report on Mr. Mousser?

22 A. Yes.

23 Q. Okay.

24 (Document marked for

1 identification as Exhibit 11.)

2 BY MR. WHITE:

3 Q. This will be Exhibit Number 11.

4 And am I correct that that is a
5 Supplemental Materials Considered List that lists
6 additional materials in addition to the three
7 prior exhibits in front of you?

8 A. Yes.

9 Q. Okay.

10 (Document marked for
11 identification as Exhibit 12.)

12 BY MR. WHITE:

13 Q. I'm going to hand you what's been
14 marked as Exhibit 12.

15 Am I correct that that is an
16 additional Supplemental Materials Considered List
17 that lists further materials that you considered
18 in addition to the ones in the preceding exhibits?

19 A. Yes.

20 Q. Okay.

21 (Document marked for
22 identification as Exhibit 13.)

23 BY MR. WHITE:

24 Q. Last one. Exhibit Number 13.

1 And am I correct that this is
2 another Materials Considered List in addition to
3 the materials listed on the preceding exhibits?

4 A. Yes.

5 Q. Okay. Between these three Materials
6 Considered Lists for the three reports and these
7 three Supplemental Materials Considered Lists, do
8 these list all of the materials that you
9 considered in forming your opinions in this case?

10 A. They should, yes.

11 Q. Okay. Did you prepare these?

12 A. Yes, mostly.

13 Q. Okay. Are there any documents that
14 you considered in this process but did not list?

15 A. I don't think so.

16 Q. Okay. Did you bring any documents
17 with you today for purposes of this deposition?

18 A. Just my reports.

19 Q. Okay. Okay. Do those copies have
20 any notes on them?

21 A. Yes.

22 Q. Are they notes for your testimony
23 today?

24 A. I don't --

1 MR. MANDELL: Objection.

2 THE WITNESS: Yeah. I don't
3 think so.

4 BY MR. WHITE:

5 Q. Okay. Okay. Do you know of any
6 studies in these -- well, I'll come back to that
7 later.

8 All right. You're a urologic
9 oncologist, correct?

10 A. Yes.

11 Q. Okay. And you see patients through
12 Johns Hopkins?

13 A. Yes.

14 Q. Okay. Is that at Sibley Memorial?

15 A. Yes.

16 Q. Okay. Is that the only place where
17 you see patients?

18 A. I see patients and I operate on
19 patients. So I see patients at Sibley. I operate
20 on patients in multiple locations.

21 Q. Okay. Thank you for that
22 clarification.

23 The places where you operate on
24 patients, are those also all within the Johns

1 Hopkins system?

2 A. Yes, and also George Washington
3 University.

4 Q. Okay. Do you have any other --
5 other than through Johns Hopkins, is there any
6 other organization through which you see or
7 operate on patients like a private practice or do
8 you have any associations with other hospitals?

9 A. No.

10 Q. Okay. And you have a professorship
11 at Johns Hopkins?

12 A. Yes.

13 Q. What classes do you teach?

14 A. I mean, I teach urology.

15 Q. Okay.

16 A. To residents.

17 Q. Okay. How often do you do that?

18 A. For, you know, classroom
19 instruction --

20 Q. Uh-huh.

21 A. -- it's not as frequent.

22 Q. Okay.

23 A. But from day-to-day instruction is
24 four times a week.

1 Q. Okay. And that would be as part of
2 the residents' clinical work at the hospital?

3 A. Yes.

4 Q. Okay. You said the classroom
5 component isn't as often.

6 Can you give me an idea about how
7 often that would be?

8 A. I would say once every three months.

9 Q. Okay. Any other classes that you
10 teach?

11 A. No.

12 Q. Okay. Is there a research component
13 to your work with Johns Hopkins?

14 A. Yes.

15 Q. Okay. Are you expected -- is it one
16 of these situations where you're expected to have
17 research product?

18 A. Usually, yes.

19 Q. Okay. Okay. Do you have any
20 administrative roles, like a director of such and
21 such department or anything along those lines?

22 A. I'm the director of urologic
23 oncology --

24 Q. Okay.

1 A. -- at Sibley.

2 Q. Okay. Any other administrative
3 roles?

4 A. I'm on some committees, you know,
5 like robotic committee, quality improvement
6 committee.

7 Q. Okay.

8 A. Things of that nature.

9 Q. Okay. So if I were to look big
10 picture at your medical and professional life, I
11 see about five different buckets.

12 Your clinical work.

13 A. Uh-huh.

14 Q. Your academic or teaching work, your
15 research work, your -- any administrative -- these
16 administrative roles that you mentioned, and your
17 expert work. So I see five buckets.

18 Are there any other major categories
19 that I am missing?

20 MR. MANDELL: Objection, but
21 you can answer.

22 THE WITNESS: Consulting for,
23 you know, pharmaceutical companies.

24 BY MR. WHITE:

1 Q. Okay. Okay. If you had to describe
2 the distribution of your time between these six
3 different major categories, obviously in rough
4 percentages, how would you -- how would you
5 describe that?

6 A. Majority clinical. I would say
7 about maybe 80 percent clinical and then, you
8 know, the teaching becomes part of the clinical as
9 well just because it's integrated. I'd say about
10 maybe 10, 15 percent research, and the other 5
11 percent would go between the -- the administrative
12 roles and, you know, extra stuff that I do.

13 Q. Okay. Okay. So in reviewing your
14 CV, it looks to me that you have a clinical
15 emphasis on urologic care for women.

16 Am I understanding that right?

17 A. That's my special interest.

18 Q. Okay. How long have you had that
19 focus?

20 A. I mean, we've established this
21 bladder cancer of women program about maybe six
22 years ago.

23 Q. Okay. Has it been -- was that a
24 clinical interest or focus of you before that

1 period as well?

2 A. You know, I -- it's -- it's -- I
3 can't really kind of say whether it was -- I think
4 it just morphed into it --

5 Q. Okay.

6 A. -- more or less.

7 Q. Okay. Other than obvious anatomical
8 differences between men and women, how does
9 urologic oncological care differ by gender?

10 A. Women are understudied and under,
11 you know, treated I would say.

12 Q. Okay.

13 A. So it's less attention being paid to
14 women in urologic malignancies.

15 Q. Okay. Any other differences?

16 A. I mean, there is some biological
17 differences in how they develop especially for
18 bladder cancer and how, you know, how their --
19 what's the word I'm looking for? How they deal
20 with the cancer and how their treatments are.

21 Q. Okay.

22 A. The outcomes. That's the word I'm
23 looking for. Outcomes.

24 Q. How about for anything with kidney

1 cancer that would differ by gender?

2 A. I mean, in epidemiologically, you
3 know, women have less kidney cancer than men do,
4 but the outcomes are mostly similar.

5 Q. Okay. Okay. Any differences in
6 treatment?

7 A. No.

8 Q. Okay. How about upper tract
9 urothelial cancer?

10 A. Again, there's some subtle
11 differences, but no major outcome differences.

12 Q. Okay. And just because I have a
13 terrible time pronouncing that -- pronouncing that
14 word, can we use UTUC to refer to --

15 A. Please let's do that.

16 Q. And, Doctor, you will -- you will
17 see, much to my patient's chagrin, I did not go to
18 medical school, and it will be evident in my
19 pronunciation of words today.

20 What is the gender breakdown of the
21 patients you see?

22 A. Probably 50/50.

23 Q. Okay. So it's not exclusively --
24 exclusively women?

1 A. Absolutely not.

2 Q. Okay. Okay. What kind of cancer do
3 you usually that you -- what kind of cancer do you
4 see most often in your clinical practice?

5 MR. MANDELL: Objection, but
6 you can answer.

7 THE WITNESS: Bladder.

8 BY MR. WHITE:

9 Q. Okay. Again, this is rough
10 percentages. What percentage of your -- of your
11 clinical patient -- patients that you see would be
12 bladder cancer patients?

13 A. Probably 70 percent.

14 Q. Okay. What's the next most common
15 cancer that you see in your clinical practice?

16 A. Kidney cancer.

17 Q. Okay. What percentage would that
18 be?

19 A. Another -- so what did I say for the
20 bladder? 70?

21 Q. 70?

22 A. So I would say about another 25
23 percent would be kidney.

24 Q. Okay. These are rough percentages.

1 I'm not going to check your math.

2 A. Correct.

3 Q. In those, in that 70 percent 25
4 percent figures that you gave, is UTUC included in
5 one of those or do you -- or would you consider
6 that in a third category, given those percentage
7 breakdowns we just discussed?

8 MR. MANDELL: Objection, but
9 you can answer.

10 THE WITNESS: I would group
11 it with bladder.

12 BY MR. WHITE:

13 Q. Okay. Okay. Have you ever had an
14 occasion in your clinical practice to determine
15 the cause or etiology of a cancer?

16 A. A lot.

17 Q. Okay. Does that -- does the cause
18 or etiology of a cancer change how you treat the
19 patient?

20 A. Sometimes.

21 Q. Okay. What times would it change
22 how you treat -- what treatment you give to the
23 patient?

24 A. So, you know, if we were to take

1 the -- let's say the upper tract disease, UTUC, if
2 they have a genetic disposition like a Lynch
3 syndrome, then the monitoring is different and,
4 you know, we'd monitor the kidneys along with the
5 bladder as well.

6 Q. Okay. I would imagine genetic
7 etiologies would probably play a role in treatment
8 of bladder and kidney cancer.

9 Am I right?

10 A. Yes, bladder is less, you know,
11 dependent on genetics but kidney, yes.

12 Q. Okay. Other than genetic causes or
13 etiologies of cancer, are there any other causes
14 or etiologies that play a role in determining how
15 you treat a patient?

16 MR. MANDELL: Objection.

17 You can answer.

18 THE WITNESS: I mean, if
19 there are any etiologies that contribute
20 to the formation of the cancer, we
21 usually would try to see if we can
22 perform cessation like for smoking.

23 BY MR. WHITE:

24 Q. Okay.

1 A. So that will affect of how we treat
2 patients.

3 Q. Okay. So determining a -- so is it
4 fair to say that you would try to determine
5 contributing etiologies and see if you can change
6 them?

7 A. Correct.

8 Q. Okay. Any other ways in which cause
9 or etiologies play a role in determining how you
10 treat a patient?

11 A. Again, I think, you know, if we look
12 at the theory, if let's say there is a condition
13 that predisposes the patient to form more
14 aggressive type of cancer, the treatment may be a
15 little bit more radical than otherwise.

16 Q. Okay. Okay. How do you go about
17 determining the etiology or cause of a cancer in
18 these situations that we just discussed?

19 MR. MANDELL: Objection, but
20 you can answer.

21 THE WITNESS: Usually by
22 asking patients.

23 BY MR. WHITE:

24 Q. Okay. Let's -- let's take genetics,

1 for example. What kind of questions do you ask?

2 A. I usually ask if they have any
3 history of cancer in the family, including
4 extended family.

5 Q. Okay. Anything else?

6 A. For genetics?

7 Q. Uh-huh.

8 A. I mean, certain conditions that go
9 hand in hand with the genetic syndromes. Like for
10 kidney cancer, some of these syndromes have like
11 skin bumps or, you know, lung cysts. So those are
12 the things I would ask.

13 Q. Okay. So you ask patients about
14 their any family history of -- of cancer or these
15 related conditions, correct?

16 A. Yes.

17 Q. Any other ways you go about finding
18 that kind of information?

19 MR. MANDELL: Objection.

20 Form.

21 THE WITNESS: Answer?

22 MR. MANDELL: Yeah. Yeah.

23 Unless I instruct you not to answer,
24 yeah, answer it, yeah.

1 THE WITNESS: I mean, if there
2 are other records available, that would
3 be it.

4 BY MR. WHITE:

5 Q. When you say "records," do you mean
6 records of the other family members who have the
7 cancer condition?

8 A. Yes.

9 Q. Okay. How often are you able to
10 obtain records from a patient's family member?

11 A. Not frequently.

12 Q. Okay.

13 A. Rarely.

14 Q. Okay. I would also imagine if it's
15 their mother or grandmother, it might -- there
16 might be like difficulties in obtaining those
17 documents from that relative's cancer or condition
18 history; is that right?

19 MR. MANDELL: Objection, but
20 you can answer.

21 THE WITNESS: I mean, some
22 patients come prepared with their, you
23 know, these documents pertaining to the
24 family members.

1 BY MR. WHITE:

2 Q. Uh-huh. Okay. In what percentage
3 of cases are you able to obtain medical records
4 about a patient's family member with a cancer or
5 condition?

6 MR. MANDELL: Objection, but
7 you can answer.

8 THE WITNESS: Very low.

9 BY MR. WHITE:

10 Q. Very low?

11 A. Uh-huh.

12 Q. Okay. Under 10 percent?

13 A. Yes.

14 Q. Okay. Under 5 percent?

15 A. Yes.

16 Q. Okay. Did you see any documents
17 like that, any medical records about family
18 members' cancer or relevant condition history, as
19 part of your work in this case?

20 A. May I look at my report for Tukes?

21 Q. Yes, please.

22 A. Okay.

23 Q. And at any point you need to look at
24 any of these exhibits in front of you to refresh

1 your recollection, please do so.

2 For the record, I just might
3 occasionally ask you which one you're looking at,
4 but that's about it.

5 A. (Reviews document.)

6 Okay. I see that for Ms. Tukes I
7 saw genetic counseling records for UNC Chapel Hill
8 about mother.

9 Q. Okay. Oh, the mother's genetic
10 counseling records?

11 MR. MANDELL: Objection.

12 THE WITNESS: It was a
13 mention of the mother.

14 BY MR. WHITE:

15 Q. Okay. Okay. In your clinical
16 practice, have you ever had occasion to determine
17 the etiology of a cancer was from PCE?

18 MR. MANDELL: Objection.

19 THE WITNESS: Not
20 specifically, but, you know, some of the,
21 let's say, occupations that may have been
22 exposed to these kinds of chemicals.

23 BY MR. WHITE:

24 Q. Okay. What kind of occupations do

1 you mean?

2 A. Or -- or, you know, some of these
3 patients who have served in military or things of
4 that nature.

5 Q. Okay.

6 A. You know, I believe PCE was the dry
7 cleaning kind of solutions, things like that.

8 Q. Okay. Any other occupations that
9 you can think of?

10 A. May I take a look as well?

11 Q. Yes, please.

12 A. Okay.

13 Q. And this is your Tukes report?

14 A. I'm still looking at the Tukes, yes.

15 Q. Okay.

16 A. (Reviews document.)

17 Yeah, I think dry cleaning.

18 Q. Okay.

19 A. For PCE, right, you asked?

20 Q. Yes, ma'am.

21 A. Yes, uh-huh.

22 Q. I'm sorry. Yes, Doctor.

23 In your clinical practice, have you
24 ever had occasion to find the etiology of a cancer

1 was due to TCE?

2 A. Again, not specifically that
3 compound but, you know, I always ask if patients
4 have worked in the industries that may be exposed
5 to solvents.

6 Q. Okay.

7 MR. MANDELL: Just -- just
8 note my objection. Sorry, I was a little
9 late on that one.

10 MR. WHITE: I'll spot you that
11 one.

12 BY MR. WHITE:

13 Q. What occupations would be relevant
14 to that for solvents?

15 A. I don't know exactly if I ask, like
16 I said, specifically for TCE, but I ask, you know,
17 work in textile, work in dry cleaning, work with
18 petroleum and all these kind of organic solvents.

19 Q. Okay. Okay. Have you ever had
20 occasion in your clinical practice to find the
21 etiology of a cancer was due to vinyl chloride?

22 A. Only as part of this whole volatile
23 organic compounds.

24 Q. Okay. So that would be through

1 looking at or considering their occupational
2 history?

3 A. Yes.

4 Q. Okay. Including some of the
5 occupational areas that we just discussed for TCE
6 and PCE?

7 A. Yes.

8 Q. Okay. Would you have a similar
9 answer to benzene instead of vinyl chloride, PCE,
10 or TCE?

11 Have you had occasion in your
12 clinical practice to find the etiology of a cancer
13 was caused by benzene?

14 A. Yes.

15 Q. Okay. And would that be through the
16 same method that we've been discussing just now?

17 A. Yes.

18 Q. Okay. Have you ever had occasion in
19 your clinical practice to find the etiology of a
20 cancer was due to Camp Lejeune water?

21 A. Yes.

22 Q. Okay. How many patients have you
23 made that etiology determination for?

24 A. At least two that I can recall.

1 Q. Okay. Roughly speaking, when were
2 these?

3 A. Years ago.

4 Q. Okay. Okay. How about in your --
5 well, without divulging patient identifying or
6 confidential information, do you know how long
7 either of those patients were stationed at Camp
8 Lejeune?

9 MR. MANDELL: Objection.

10 THE WITNESS: I did not ask
11 the specifics.

12 BY MR. WHITE:

13 Q. Okay. And that would be for both of
14 them?

15 A. Yes.

16 Q. Okay. Other than the volatile
17 organic compounds that we've been talking about at
18 Camp Lejeune, have you ever had occasion in your
19 clinical practice to find that the etiology of a
20 cancer was due to any other toxic exposure that we
21 haven't yet talked about?

22 MR. MANDELL: Objection.

23 THE WITNESS: Are we talking
24 about kidney? Bladder? Anything?

1 BY MR. WHITE:

2 Q. Sure.

3 A. Anything. I mean --

4 MR. MANDELL: Objection.

5 THE WITNESS: Yeah, I mean,
6 we've talked about smoking. There is
7 some other for upper tract cancer
8 exposures that I routinely ask about,
9 like Paracetamol.

10 Some of the compounds that can
11 be, like, part of the -- the etiology for
12 upper tract for patients who are not in
13 the U.S. Arsenic. So those are the
14 things.

15 BY MR. WHITE:

16 Q. Okay. Okay. Okay.

17 Is it fair to say that you -- so you
18 mentioned you ask if they smoke or have taken
19 Paracetamol.

20 A. Uh-huh.

21 Q. Would it be fair to call those risk
22 factors for bladder or kidney cancer?

23 MR. MANDELL: Objection.

24 You can answer.

1 BY MR. WHITE:

2 Q. Yeah.

3 A. Yes.

4 Q. Okay. Generally speaking -- and
5 let's talk about kidney cancer first -- can you
6 identify any other risk factors?

7 A. Yes. You know, what's quoted in
8 literature is hypertension, chronic kidney
9 disease.

10 Q. Would diabetes be one?

11 A. I mean, diabetes is linked to kidney
12 disease sometimes as well. So.

13 Q. Okay. Would obesity be one?

14 A. Yes.

15 Q. I think you alluded to this earlier.
16 Would male gender be one?

17 A. Yes.

18 Q. Okay. Is age a risk factor?

19 A. Yes.

20 Q. Okay. Are there any risk factors
21 for kidney cancer that depend that -- that turn on
22 race?

23 A. Can you explain? What do you mean
24 by turning on race?

1 Q. Sure.

2 Are there any risk factors
3 associated with race or ethnicity for patients of
4 kidney cancer?

5 MR. MANDELL: Objection, but
6 you can answer.

7 THE WITNESS: Certain types
8 of kidney cancer can be linked to, you
9 know, different racial predisposition.

10 BY MR. WHITE:

11 Q. Okay. What would those be?

12 A. So, you know --

13 MR. MANDELL: Objection.

14 THE WITNESS: -- for African
15 Americans, you know, sickle cell could
16 predispose them to a certain kind of
17 kidney cancer.

18 BY MR. WHITE:

19 Q. Okay.

20 A. Rare.

21 Q. Okay. Can you think of any others?

22 A. Not that I can think of.

23 Q. Okay. For upper tract urothelial
24 cancer, does it have similar risk factors to

1 kidney cancer?

2 MR. MANDELL: Same objection.
3 You can answer.

4 THE WITNESS: Yes, but also
5 they have exposure to -- I went to
6 medical school, but I have a hard time
7 pronouncing that one too -- aristolochic
8 acid, which is a very kind of minute
9 percentage of people who develop, but
10 it's a risk factor as well.

11 BY MR. WHITE:

12 Q. I regret to inform you, you may have
13 to spell that for the court reporter on the next
14 break.

15 A. Okay.

16 Q. Roughly speaking, what percentage of
17 your patients do you determine the etiology of
18 their cancer?

19 A. I myself or my team?

20 Q. Let's start with you yourself.

21 A. Okay. Probably not a huge amount.

22 Q. Okay. Over/under 10 percent?

23 A. Over 10 percent.

24 Q. Over/under 20 percent?

1 A. I'd say over 20 percent.

2 Q. Over/under 30?

3 A. More than 50 I would say.

4 Q. More than 50?

5 A. Yes.

6 Q. Okay. Over 50 percent of the cases
7 you determine the etiology for?

8 A. They have a predisposing risk
9 factor, yes.

10 Q. Okay. They have a predisposing risk
11 factor.

12 Okay. Does having a predisposing
13 risk factor and etiology, are you using those
14 terms interchangeably?

15 MR. MANDELL: Objection.

16 THE WITNESS: I think for the
17 purpose of your questions I did.

18 BY MR. WHITE:

19 Q. Okay. Okay. Do you have any
20 patients who have no predisposing risk factors for
21 kidney cancer?

22 A. Yes.

23 Q. Okay. What percentage do you think,
24 roughly speaking, would that be?

1 A. Would be a considerable percentage.
2 I would say maybe 70 percent.

3 Q. Okay. Have no risk -- predisposing
4 risk factors?

5 A. Yes.

6 Q. Okay.

7 A. And I'm sorry. So I think this
8 becomes a little bit of a gray territory, right?
9 Because we've talked about age and race -- and
10 race and age and, I'm sorry, sex.

11 Q. Uh-huh.

12 A. So if we count these as risk
13 factors, then, no, right? Because average patient
14 I see would fit in that category.

15 Q. By definition, about half of your
16 patients would be -- would be male?

17 A. Right. Yeah.

18 Q. Okay. That's a very good
19 clarification. Thank you.

20 Let me ask it again with that --
21 with that caveat.

22 Other than gender and age, what
23 percentage of the patients do you see clinically
24 have no other predisposing risk factors?

1 MR. MANDELL: I'm going to
2 object, but you can answer.

3 THE WITNESS: Okay. So that
4 would be about -- for kidney
5 specifically, I would say about 60, 70
6 percent.

7 BY MR. WHITE:

8 Q. Okay. How about upper tract uro- --
9 UTUC?

10 A. Again, majority of patients. I
11 would say 70.

12 Q. Okay. How about for bladder?

13 A. For bladder because smoking is so
14 prevalent, that number would be much less. So I
15 would say about maybe 30, 40 percent.

16 Q. Okay. Okay. All right.

17 I'm going to go through a few
18 questions where I'm just trying to determine what
19 kind of medicine you practice and what kind of
20 medicine you don't practice.

21 Do you consider yourself a
22 nephrologist?

23 A. No.

24 Q. Okay. How about an epidemiologist?

1 A. No.

2 Q. Okay. Geneticist?

3 A. No.

4 Q. Okay. Toxicologist?

5 A. No.

6 Q. Okay. Environmental exposure
7 modeler?

8 A. No.

9 Q. Okay. Environmental risk assessor?

10 A. No.

11 Q. Okay. An economist?

12 A. Economist?

13 Q. Yeah.

14 A. No.

15 Q. An accountant?

16 A. No.

17 Q. Worse one of all, Doctor.
18 Attorney?

19 A. Absolutely not.

20 Q. Good answer.

21 Do you consider yourself an expert
22 in pharmacology?

23 A. No.

24 Q. How about environmental health?

1 A. No.

2 Q. Okay. Occupational medicine?

3 A. No.

4 Q. Statistics?

5 A. No.

6 Q. Okay. Are you qualified to make
7 disability assessments for your patients?

8 MR. MANDELL: Objection.

9 You can answer.

10 THE WITNESS: I mean, I don't
11 know what that means exactly.

12 BY MR. WHITE:

13 Q. Sure. I'll give you an example.

14 There's sometimes for workers'
15 compensation or disability insurance claims,
16 people will have doctors make formal
17 percentage-based disability assessments for their
18 patient where a doctor might say, because of this
19 condition, my patient is 70 percent disabled, or
20 because he lost his arm, it's 40 percent disabled,
21 or something along those lines.

22 Have you ever had occasion to do
23 anything like that?

24 A. So for temporary disability, you

1 know, after a treatment, yes, but never for
2 permanent or anything like that.

3 Q. Okay. Are you qualified to make
4 quantitative toxicological risk assessments for
5 chemicals?

6 MR. MANDELL: Objection.
7 You can answer.

8 THE WITNESS: I mean, I can
9 interpret literature, but I don't write
10 literature like that.

11 BY MR. WHITE:

12 Q. Okay. Are you qualified to do the
13 actual mathematical assessment of -- of
14 toxicological risk calculation?

15 MR. MANDELL: Same objection.
16 You can answer.

17 THE WITNESS: No.

18 BY MR. WHITE:

19 Q. Okay. How about are you qualified
20 to make quantitative toxicological exposure
21 assessments for chemicals?

22 MR. MANDELL: Objection.

23 THE WITNESS: I'm not clear
24 on that.

1 BY MR. WHITE:

2 Q. Sure.

3 Are you -- are you qualified to make
4 the mathematical quantitative calculations for
5 determining toxicological exposure for chemicals?

6 MR. MANDELL: Objection.

7 THE WITNESS: Probably not.

8 BY MR. WHITE:

9 Q. Okay. Have you ever participated in
10 human health environmental risk assessments like
11 with the EPA or ATSDR?

12 A. No, not formally.

13 Q. Okay. Did you say "not formally"?

14 A. Yeah. No.

15 Q. Okay. Have you ever participated in
16 such an assessment informally?

17 A. I mean, just for my own. Again,
18 kind of reading literature, etc.

19 Q. Okay. So just in your -- in your
20 own time reading materials about such assessments;
21 is that correct?

22 A. Correct.

23 Q. Correct?

24 A. Yes.

1 Q. Okay. Thank you.

2 Have you ever read any of the EPA's
3 risk assessment guides?

4 A. Was it one of the EPA materials I
5 reviewed? If it's there, then maybe.

6 Q. Okay. How about specifically the
7 EPA's Risk Assessment Guidance for Superfund
8 sites?

9 A. I don't -- I don't believe so.

10 Q. Okay. How about the EPA's
11 Guidelines for Carcinogen Risk Assessment?

12 A. I don't believe so.

13 Q. Okay. Have you ever published any
14 peer-reviewed work on PCE, TCE, vinyl chloride, or
15 benzene?

16 A. No.

17 Q. How about for any other volatile
18 organic compounds?

19 A. Not directly, but I wrote some
20 chapters on kind of involving the risk assessment
21 for the urothelial cancers and kidney cancers.

22 Q. Okay.

23 A. That may have alluded to some of
24 those, not specifically.

1 Q. Okay. So it may have alluded to
2 generally toxicological exposures?

3 A. Occupational exposures, yes, risk
4 factors.

5 Q. Okay. Is that -- is that listed on
6 your CV?

7 A. It should be.

8 Q. Okay. Could you help me find it on
9 your CV just so I make sure I know where it's at?

10 A. So the upper tract chapters have
11 that, and also I wrote a chapter for kidney
12 cancer.

13 Q. I'm looking. Unfortunately, I don't
14 have page numbers on this.

15 A. So, so book and textbook chapters.
16 Yeah, there's no page number here.

17 Q. Yeah, that's actually I was looking
18 at the same spot. So.

19 A. So page 3 I guess.

20 Q. Okay.

21 A. So the urothelial like 2, 3, 4, and
22 5 and 6 all have some risk assessment.

23 Q. Okay. Did you do any of the risk
24 assessment that's present in those chapters?

1 A. Myself? No.

2 Q. Okay. Okay. Would you be qualified
3 to do any of the risk assessment that's in those
4 chapters?

5 A. Again --

6 MR. MANDELL: Objection.

7 You can answer.

8 THE WITNESS: -- what is --

9 what is -- can you explain "risk"? What
10 that means?

11 BY MR. WHITE:

12 Q. Sure.

13 Are you qualified to make
14 quantitative assessments of those risks using
15 statistics and mathematics?

16 MR. MANDELL: Objection.

17 THE WITNESS: No.

18 BY MR. WHITE:

19 Q. Okay. Have you ever read any
20 textbooks about dose or exposure modeling?

21 MR. MANDELL: Objection.

22 THE WITNESS: I can't recall.

23 Maybe.

24 BY MR. WHITE:

1 Q. Okay. How about for environmental
2 risk assessment?

3 A. Again, maybe.

4 Q. Okay. Okay. Other than the book
5 chapters, have you ever published any
6 peer-reviewed work on a specific toxicological
7 substance or substances?

8 A. No.

9 Q. Okay. Where are you licensed to
10 practice medicine?

11 A. Currently, DC and Maryland.

12 Q. Okay. Have you ever been the
13 subject of a disciplinary action in regards to
14 your medical license?

15 A. No.

16 Q. Okay. Ever been a party to a
17 medical malpractice action?

18 A. Once and the case was dropped.

19 Q. Okay. Did it settle or was it just
20 affirmatively dropped?

21 A. It was like even before it proceeded
22 to have any kind of legal implications.

23 Q. Okay. Okay. For the next
24 questions, I'm just going to use -- let's start

1 with Mrs. Tukes' report.

2 A. Yes.

3 Q. And I'm just going to use that as a
4 model to walk through and ask you questions, and
5 whenever I -- whenever we need to shift to looking
6 at one of the other reports, I'll let you know.

7 Does that make sense?

8 A. Yes.

9 Q. All right. Let's take a look at
10 page -- it's numbered as page 2, but it's probably
11 the fifth page into the packet.

12 You reference the standard of "at
13 least as likely -- at least as likely as not" in
14 your reports; correct?

15 A. Yes.

16 Q. Did you use any other standards
17 beyond "at least as likely as not"?

18 MR. MANDELL: Objection, but
19 you can answer.

20 THE WITNESS: I believe I
21 used "more likely than not" as well.

22 BY MR. WHITE:

23 Q. Okay. Any others?

24 A. I don't believe so.

1 Q. Okay. Have you ever used the "at
2 least as likely as not" standard in your clinical
3 practice?

4 A. I mean, not in the legal terms but,
5 I mean, I think a lot of the times, trying to
6 decide on kind of equivalent treatments or
7 interpreting literature on kind of equivalent,
8 again, treatments.

9 Q. Okay. Have you ever used the
10 standard to -- the standard "at least as likely as
11 not" to make a diagnosis, whereby you would say or
12 think something along the lines of: At least as
13 likely as not, this patient has diagnosis X?

14 Have you ever used it in that way?

15 MR. MANDELL: Objection, but
16 you can answer.

17 THE WITNESS: I guess so.

18 Probably.

19 BY MR. WHITE:

20 Q. Okay. Do you understand "at least
21 as likely as not" to mean equal chance of going
22 either way?

23 A. Yes.

24 MR. MANDELL: Objection.

1 Sorry.

2 BY MR. WHITE:

3 Q. Okay. So 50/50 coin flip kind of
4 standard?

5 MR. MANDELL: Objection, but
6 you can answer.

7 THE WITNESS: Yes.

8 BY MR. WHITE:

9 Q. Okay. Have you ever used it to make
10 surgical determinations along the lines of: It's
11 50/50 or a coin flip whether this patient needs
12 this particular surgery?

13 A. I don't think we operate based on a
14 coin flip. Usually has to be more than that for
15 me to operate.

16 Q. Okay. And why is that?

17 A. I mean, usually kind of the benefits
18 of the surgery have to be much more clear than the
19 50/50. So, you know, surgery versus no surgery
20 is -- is not a fair representation. I would say
21 maybe surgery A versus surgery B, maybe that would
22 be a different kind of representation.

23 Q. Okay. Okay. How about you use the
24 standard along the lines of: It's 50/50 a coin

1 flip patient needs medication Y versus medication
2 Z?

3 A. Yes.

4 Q. Okay. Have you ever used the "at
5 least as likely as not" standard in your research
6 work?

7 A. I mean, I've seen it in an article,
8 but not my personal research.

9 Q. Okay. What was the article in which
10 you saw "at least as likely as not" standard used?

11 A. I believe that was one of the
12 articles that was disclosed on the supplemental
13 materials that I reviewed.

14 Q. Okay. Other than that one article,
15 are you aware of the "at least as likely as not"
16 standard being used in any other's research?

17 A. I mean, not when it's -- not -- not
18 spelled out that way but, you know, any
19 non-inferiority trial that looks at the
20 treatment A versus B is pretty much that standard.

21 Q. Well, just to make it clear on the
22 record, what is a non-inferiority trial?

23 A. That means, you know, if we have one
24 treatment when we're -- but we're having another

1 treatment which may be newer to see if the
2 outcomes are going to be equivalent to the first
3 one.

4 Q. Okay. And this would be a new
5 treatment in an experimental phase?

6 A. Yes.

7 Q. In like a --

8 A. A lot of times.

9 Q. -- human trial?

10 A. Yes. Yes.

11 Q. I'm sorry. I did not mean to speak
12 over you.

13 A. Yes.

14 Q. Okay. And is the reason for using
15 that, inferiority assessments for new medication
16 research, to make sure that the study participants
17 aren't any worse off for participating in the
18 study?

19 A. Exactly.

20 Q. Okay. But that is not the standard
21 by which to introduce a new medication; is that
22 correct?

23 MR. MANDELL: Objection.

24 THE WITNESS: It depends.

1 BY MR. WHITE:

2 Q. Okay. In what situations do you
3 know of where a new medication can be introduced
4 beyond the experimental human trial phase based on
5 a 50/50 coin flip "at least as likely as not"
6 standard?

7 MR. MANDELL: I'm going to
8 object, but you can answer.

9 THE WITNESS: I'm trying to
10 think of a concrete medication.

11 But let's say there was a new
12 medication approved for bladder cancer, a
13 new regimen that was approved for bladder
14 cancer, that is as good as the prior
15 medication that we've used before, and
16 now the medical oncologists are a little
17 confused which one to use.

18 So that's kind of, you know,
19 that's the type of introduction that you
20 asked about pretty much.

21 BY MR. WHITE:

22 Q. Okay. I'm sorry. That was my fault
23 because I asked an unclear question.

24 In what -- are you aware of a

1 pharmaceutical company being able to bring a
2 medication, introduce a new medication based on an
3 "at least as likely as not" standard?

4 MR. MANDELL: Objection.

5 THE WITNESS: You know,
6 frankly, I don't recall if FDA approves,
7 you know, medication based on as, you
8 know, that kind of a concept.

9 BY MR. WHITE:

10 Q. Okay. Okay. Have you ever used the
11 "at least as likely as not" standard in any of the
12 other expert reports that you've written for
13 litigation?

14 A. I don't think so.

15 Q. Okay. What standards did you use in
16 those other reports?

17 A. I mean "more likely than not."

18 Q. Okay. Is your understanding that
19 "at least as likely as not" is a lesser standard
20 than "more likely than not"?

21 A. I mean, I wouldn't call it a lesser
22 standard, but it's a different standard.

23 Q. Okay. So if a likelihood is 50/50,
24 a coin flip, that would be not "more likely than

1 not," correct?

2 A. Yes.

3 Q. Okay.

4 A. Sounds like an English teacher, but
5 yes.

6 Q. I'll be very careful in how I ask
7 these questions. I'm not in that, but I think you
8 got that one.

9 A. (Laugh). Okay.

10 Q. Would you agree with me that "at
11 least as likely as not" is a legal standard?

12 A. Yes.

13 Q. Okay. Do you know where it comes
14 from?

15 A. I --

16 MR. MANDELL: Objection.

17 Foundation and form, but you can answer.

18 THE WITNESS: I think it was
19 either Congressional approval or this
20 ATSDR definition.

21 BY MR. WHITE:

22 Q. Okay. Do you know where and why the
23 ATSDR uses that standard?

24 A. I quoted the ATSDR when I put a

1 definition for it.

2 Q. Okay. Do you know in what cases
3 they use that standard?

4 MR. MANDELL: Objection.

5 THE WITNESS: I don't recall.

6 BY MR. WHITE:

7 Q. Okay. Do you know how this standard
8 is used in other areas of the law?

9 MR. MANDELL: Objection.

10 THE WITNESS: No.

11 BY MR. WHITE:

12 Q. Do you know how the standard is used
13 by the Department of Veterans Affairs?

14 MR. MANDELL: Objection.

15 THE WITNESS: No.

16 BY MR. WHITE:

17 Q. Okay. Have you ever heard this
18 standard called "equipoise"?

19 A. That's what I wrote.

20 Q. Okay. All right. So that's a yes?

21 A. Yes.

22 Q. Okay. Would you agree with the
23 following statement:

24 "Equipoise denotes a lack of

1 consensus across the medical community."

2 MR. MANDELL: Objection.

3 THE WITNESS: No, I don't
4 think that's the definition because I
5 have the definitions here and that's not
6 what it says.

7 BY MR. WHITE:

8 Q. Okay. If it's not the definition,
9 would you still agree with the statement that it
10 denotes a lack of consensus across the medical
11 community?

12 MR. MANDELL: Objection.

13 THE WITNESS: I would
14 disagree with that.

15 BY MR. WHITE:

16 Q. Okay. Would you agree or disagree
17 with this one:

18 "Equipoise is used in clinical
19 research to refer to a situation where there is
20 uncertainty or conflicting expert opinion about
21 the relative merits of two or more interventions
22 rather than a perfect balance of opinions."

23 MR. MANDELL: Objection. Form
24 and foundation, but you can answer.

1 THE WITNESS:

2 (Reviews document.)

3 So I can go by kind of, again,
4 what I quoted and that's not what I
5 quoted.

6 So the quote said was either
7 meta-analysis does not, you know, have a
8 convincing evidence or meta-analysis
9 conducted, but at least one
10 epidemiological study is a high utility
11 that associates.

12 BY MR. WHITE:

13 Q. Okay. Beyond the definition that
14 you use in your reports, would you still agree or
15 disagree with that statement?

16 A. Can you read it again?

17 Q. Sure.

18 Equipoise is used to -- I'm sorry.
19 Let me restart.

20 "Equipoise is used in clinical
21 research to refer to a situation where there is
22 uncertainty or conflicting expert opinion about
23 the relative merits of two or more interventions
24 rather than a perfect balance of opinions."

1 MR. MANDELL: Objection.

2 THE WITNESS: Yeah, that's not
3 how I think about this.

4 BY MR. WHITE:

5 Q. Okay. Okay. Have you ever heard
6 this standard "at least as likely as not" referred
7 to as the "benefit of the doubt" --

8 MR. MANDELL: Objection.

9 BY MR. WHITE:

10 Q. -- as to giving one side the benefit
11 of the doubt?

12 MR. MANDELL: Objection.

13 THE WITNESS: I haven't heard
14 that.

15 BY MR. WHITE:

16 Q. Okay. In your medical research,
17 have you ever reached a conclusion by giving one
18 potential outcome the benefit of the doubt versus
19 another one?

20 A. I mean, I don't think we use
21 "benefit of the doubt" when we conduct research.

22 Q. Okay. Okay. In clinical treatment
23 of patients, have you ever made one diagnosis over
24 the other because you're using a benefit of the

1 doubt to that one particular diagnosis versus the
2 other?

3 MR. MANDELL: Objection.

4 THE WITNESS: No, I don't

5 think so.

6 BY MR. WHITE:

7 Q. Okay. Are you aware of any
8 empirical metric that defines the benefit of the
9 doubt?

10 A. No.

11 Q. Okay. Where did you receive -- so I
12 see here you've quoted the statute under the CLJA,
13 and that's the one "standards to meet the burden
14 of proof described in paragraph 1."

15 Where did you obtain that?

16 A. Some of the materials was passed to
17 me in the very beginning of the -- my engagement.

18 Q. Uh-huh. Okay. I don't want to know
19 about substance of communications you had with the
20 lawyers.

21 But is this the standard you were --
22 that was part of your basic instructions to use?

23 MR. MANDELL: Objection.

24 Don't answer any questions in

1 terms of communications from lawyers to
2 you. I would interpret "instruction"
3 that way but...

4 MR. WHITE: Yes.

5 MR. MANDELL: So don't do
6 that, but if there's some other way that
7 you can interpret that, then you can go
8 ahead and answer.

9 THE WITNESS: I mean, I was
10 just given the materials.

11 BY MR. WHITE:

12 Q. Okay. So you were given this
13 statutory language that's quoted in your report?

14 A. Yes, it was in the materials.

15 MR. MANDELL: Objection.

16 Yeah.

17 BY MR. WHITE:

18 Q. Okay. Were you similarly given the
19 language that's quoted in the bottom half of the
20 causation standard section of the Tukes report
21 where it has the underlined text "sufficient
22 evidence for causation"?

23 MR. MANDELL: I'm going to
24 object and again instruct you not to

1 answer in terms of communications to you.
2 So I'm going to give you that
3 instruction.

4 THE WITNESS: Again, it was
5 in the -- in the packet of all the
6 information that was forwarded to me.

7 BY MR. WHITE:

8 Q. Okay. Okay. Have you ever -- in
9 any of your other expert reports, have you ever
10 cited a piece of statutory language?

11 A. I honestly can't recall.

12 Q. Okay. Have you ever cited statutory
13 language like that in a peer-reviewed medical
14 publication?

15 A. No.

16 Q. Or any other medical literature that
17 you read?

18 A. No.

19 Q. What is your understanding of the
20 phrase "evidence sufficient to conclude that a
21 causal relationship exists"?

22 MR. MANDELL: Objection.

23 THE WITNESS: I mean, just
24 what it sounds like. There's evidence

1 that there is (A) some relationship to
2 the cause.

3 BY MR. WHITE:

4 Q. Okay. Do you agree that a
5 correlation between an exposure to a substance and
6 a disease in the -- in the person is not
7 necessarily the same as the exposure causing the
8 disease?

9 MR. MANDELL: Objection, but
10 you can answer.

11 THE WITNESS: Correct.

12 BY MR. WHITE:

13 Q. Okay. Would you agree that part of
14 determining whether an association is causal as
15 opposed to a mere correlation includes evaluating
16 the quality of the studies reporting the
17 association?

18 A. Yes.

19 Q. Okay. And part of determining
20 whether an association is causal as opposed to
21 merely correlation would include whether chance
22 and biases can be ruled out with reasonable
23 confidence?

24 MR. MANDELL: Objection.

1 THE WITNESS: Yes.

2 BY MR. WHITE:

3 Q. Okay. In medical literature and
4 with respect to ruling out chance and biases, what
5 does reasonable confidence mean to you?

6 MR. MANDELL: Objection.

7 THE WITNESS: I don't -- I
8 don't know if I can answer that question
9 the way you are posing it.

10 BY MR. WHITE:

11 Q. Sure.

12 A. Can you change it?

13 Q. Yes. Let me see what I can do here.
14 In point 3 of the standard, and this
15 tips onto the next page, page labeled number page
16 number 3 in your Tukes report. It says:

17 "Number 3. Meta-analysis has not
18 been conducted, but there is at least one
19 epidemiological study considered to be of high
20 utility in which an association between the
21 exposure and increased risk of the disease of
22 interest has been found and in which chance and
23 biases can be ruled out with reasonable
24 confidence."

1 As the phrase "reasonable
2 confidence" is used there, what does that phrase
3 mean to you?

4 A. I mean, meaning the study has
5 scientific merit --

6 Q. Okay.

7 A. -- and it's kind of hit all the
8 checkmarks for, you know, being -- again, what's
9 the word that I'm looking for? Have a merit.

10 Q. Okay. So the first line of this
11 says:

12 "A meta-analysis has not been
13 conducted, but there is at least one
14 epidemiological study to be considered of high
15 utility."

16 Have you ever treated a patient on
17 the basis of one study if there are other studies
18 that reach the opposite conclusion?

19 MR. MANDELL: Objection, but
20 you can answer.

21 THE WITNESS: I mean, usually
22 that's not the case. Usually there are
23 multiple studies on each topic published
24 and, you know, yes, sometimes they all

1 have the same conclusion. Sometimes
2 there's some conflicting conclusions.

3 BY MR. WHITE:

4 Q. Uh-huh. In such a situation, would
5 you ever rely upon one study that's going a
6 different direction from the remaining studies on
7 the topic to base a patient's treatment positions
8 on it?

9 MR. MANDELL: Objection. Form
10 and foundation, but you can answer.

11 THE WITNESS: So if there are
12 three studies that tell me, you know, the
13 opposite of the one study I want to use,
14 I would probably not use that study.

15 BY MR. WHITE:

16 Q. Okay.

17 A. Like well-written studies.

18 Q. Yeah. Understood. Understood.

19 So if we can go --

20 Have you ever used the phrase "a
21 reasonable degree of scientific or medical
22 certainty" in your academic publications?

23 A. I don't think so.

24 Q. Okay. How about the same phrase but

1 in your clinical practice?

2 A. No. I think it's very much of like
3 a -- I use it more for legal.

4 Q. You've predicted my next question.

5 Do you use the standard "a
6 reasonable degree of scientific or medical
7 certainty" in your expert work?

8 A. Yes.

9 Q. Okay. Have you used that -- other
10 than your reports in this case, have you used that
11 standard "to a reasonable degree of scientific or
12 medical certainty" in all of your prior expert
13 reports, to the best of your recollection?

14 A. Yes.

15 MR. WHITE: Okay. All right.

16 I'm noticing that we are at 11:45.

17 We can go off record.

18 MR. MANDELL: Sure.

19 THE VIDEOGRAPHER: The time is
20 11:46 AM. We are now off the record.

21 (A recess was taken.)

22 THE VIDEOGRAPHER: The time is
23 11:56 AM. We are now on the record.

24 BY MR. WHITE:

1 Q. All right, Doctor. We're back after
2 a short break.

3 Did you have occasion to talk to
4 anybody about the substance of your testimony
5 today or during that break?

6 A. No.

7 Q. Okay. Just a couple things I want
8 to follow up on.

9 You said that you did some
10 consulting work for pharmaceutical companies?

11 A. Yes.

12 Q. What is the nature of that
13 consulting work?

14 A. It's on my CV. You know, they ask
15 me about their products or, you know, in
16 development of products and things of that nature.

17 Q. Okay. So would that be assisting in
18 drug development?

19 A. Drug development, implementation,
20 yes.

21 Q. How about any of the testing or
22 clinical trials for medications?

23 A. Yes.

24 Q. Okay. Do you -- trying to think the

1 best way to phrase this.

2 Do you run the clinical trials or do
3 you assist on the side?

4 A. I don't know what's the best to
5 answer it.

6 You know, clinical trials are fairly
7 complex, right? So they're, like, initiated by a
8 company and then, you know, the sites run it for
9 them. So I've been part of the sites that run
10 some things for them.

11 Q. Okay. Are all of these drugs for
12 urologic cancers?

13 A. Yes.

14 Q. Okay. Okay. Any -- do you work for
15 one particular pharmaceutical company, or is it
16 sort of an intermediary that the companies hire to
17 conduct their clinical trials?

18 A. No. On my CV under consultantships,
19 it lists the companies that I've worked with.

20 Q. Okay. Okay.

21 A. It's probably the last -- I should
22 really number the CV. It's like in the middle
23 somewhere.

24 Q. Okay. That's okay.

1 Also, I asked you some questions
2 about your -- well, I'll come back to that.

3 On page -- the numbered page 3 of
4 Mrs. Tukes' report, which I believe is Exhibit
5 Number 1, you give a medical history for
6 Mrs. Tukes. And I just want to go through and
7 make sure that -- make sure that I am
8 understanding this correctly.

9 When you say "multifocal" tumors,
10 that means in layman's terms tumors appearing on
11 different spots of the organ?

12 A. Yes.

13 Q. Okay. And bilateral tumors would
14 mean appearing on both sides, in this case both
15 kidneys?

16 A. Yes.

17 Q. Okay. Multifocal and bilateral
18 tumors in the same person. That is not a common
19 presentation for kidney cancer, correct?

20 MR. MANDELL: Objection.

21 THE WITNESS: Correct.

22 BY MR. WHITE:

23 Q. This isn't used here, but it's used
24 in a couple other places in your report.

1 Am I correct that synchronous tumors
2 mean tumors that are occurring at the same time?

3 A. Yes.

4 Q. And metachronous tumors are tumors
5 that appear at different times?

6 A. Yes. Metachronous.

7 Q. Okay. Thank you.

8 You note that Mrs. Tukes has post
9 nephrectomy chronic kidney disease, or referred to
10 by CKD.

11 Is her CKD as it stands today, or at
12 least as of the last medical records you reviewed
13 for her, is her CKD clinically manifested in
14 anything other than her eGFR figures?

15 MR. MANDELL: Objection, but
16 you can answer.

17 THE WITNESS: I mean, the
18 last records we have are after her kidney
19 transplant, aren't they?

20 BY MR. WHITE:

21 Q. Uh-huh.

22 A. So yes. I mean, it's manifested by
23 her having kidney transplant.

24 Q. Okay. Is she in her -- in her

1 present state, other than the lowered eGFR numbers
2 indicating CKD, is she experiencing any clinical
3 symptoms or any loss of functions or capacities
4 due to CKD?

5 MR. MANDELL: Objection.

6 THE WITNESS: I mean, again,
7 CKD resulted in transplant and then, you
8 know, now she has a different lifestyle
9 after transplant. So I don't know how to
10 put these two together.

11 BY MR. WHITE:

12 Q. Okay. Okay. Has she had CKD after
13 her transplant?

14 A. I don't recall her creatinine
15 numbers after, like, the most recent.

16 Q. Okay. Okay. You note that
17 Ms. Tukes -- Mrs. Tukes has hypertension.

18 Was that before or after her
19 nephrectomies, or both?

20 A. She had -- appears to me it was
21 before.

22 Q. Okay. Do you know if she has
23 hypertension following her kidney transplant?

24 A. I don't recall that information.

1 Q. Okay. You note that she has sleep
2 apnea.

3 Was that -- did she have that before
4 the nephrectomy or after the nephrectomy, or both
5 before and after?

6 A. I don't recall that.

7 Q. Okay. Would the fact that she has
8 sleep apnea be relevant to your opinions?

9 A. No.

10 Q. Okay. How about the fact that she
11 has hyperparathyroidism of renal -- okay.

12 What is hyperparathyroidism of renal
13 origin?

14 A. Some -- some definition by
15 endocrinologist or nephrologist.

16 Q. Okay. Are you qualified to make
17 that diagnosis?

18 A. No.

19 Q. Okay. Okay. So is that diagnosis
20 relevant to the opinions you offer here today?

21 A. No.

22 Q. Okay. How about for osteoarthritis?

23 A. Not relevant.

24 Q. Okay. Are you aware -- so there's

1 some discussion in your report about Mrs. Tukes'
2 mother's cancer, and we know that it mentions a
3 renal mass and it was metastatic.

4 Are you aware of any other sites
5 where Mrs. Tukes's mother had cancer beyond just
6 the kidney?

7 MR. MANDELL: Objection, but
8 you can answer.

9 THE WITNESS: No, I think it
10 was unclear.

11 BY MR. WHITE:

12 Q. Okay. Okay. And it's unclear that
13 the cancer started at the kidney and spread
14 elsewhere versus the cancer started elsewhere and
15 spread to the kidney, correct?

16 A. That's correct.

17 Q. Okay. Are you aware of any of the
18 facts surrounding Mrs. Tukes' cousin having kidney
19 cancer?

20 A. No.

21 Q. Okay. Do you know whether the
22 cousin was on Mrs. Tukes' mother's side of the
23 family?

24 A. I don't recall that information.

1 Q. Okay. Okay. What would you
2 consider to be a stable creatinine level in a
3 patient like Mrs. Tukes post kidney transplant?

4 MR. MANDELL: Objection.

5 THE WITNESS: Again, this is
6 something that a nephrologist would
7 assess.

8 BY MR. WHITE:

9 Q. Okay. So are you -- so are you
10 qualified to offer any opinions about whether or
11 the extent to which Mrs. Tukes's chronic kidney
12 disease is controlled or uncontrolled?

13 A. Correct.

14 Q. You are not qualified to make those
15 opinions?

16 A. Correct.

17 Q. Okay. Are you aware that Mrs. Tukes
18 who died as a result of kidney cancer?

19 A. I wasn't aware of that.

20 Q. Okay.

21 MR. MANDELL: One second.

22 MR. WHITE: Sure.

23 MR. MANDELL: When we came
24 back from a break, did you unmute by any

1 chance?

2 THE VIDEOGRAPHER: It's
3 unmuted now.

4 MR. MANDELL: It's unmuted?

5 THE VIDEOGRAPHER: It's
6 unmuted.

7 MR. MANDELL: Great. Thank
8 you.

9 BY MR. WHITE:

10 Q. If we can turn to the next page.
11 This is internally paginated page number 4 of
12 Exhibit 1, and we see at the top number 7
13 "Dr. Irving Allen Report."

14 In this first paragraph at the top
15 of page 4, are you offering any genetics opinions
16 independent of those contained in Dr. Allen's
17 report?

18 MR. MANDELL: Objection, but
19 you can answer.

20 THE WITNESS: No.

21 BY MR. WHITE:

22 Q. Okay. In the second paragraph, are
23 you offering any genetics opinions independent of
24 those contained in Dr. Allen's report?

1 MR. MANDELL: Objection.

2 THE WITNESS: No.

3 BY MR. WHITE:

4 Q. Okay. How about in the third
5 paragraph?

6 A. Yes.

7 Q. You are offering opinions of your
8 own?

9 A. Based on the report.

10 Q. Okay. So your genetics opinions --
11 is it fair to say that your genetics opinions in
12 that third paragraph are based on the conclusions
13 provided by Dr. Allen in his report?

14 A. Yes.

15 Q. Okay. If Dr. Allen is incorrect
16 about the increased -- the genetically-based
17 increased susceptibility on those two genes, could
18 that change the opinions that you offer in that
19 third paragraph?

20 MR. MANDELL: Objection.

21 THE WITNESS: Partially.

22 BY MR. WHITE:

23 Q. Okay. If he is -- if he is wrong
24 and she, Mrs. Tukes, does not have increased

1 susceptibility due to those two genes, would
2 anything you say in that third paragraph still be
3 valid?

4 MR. MANDELL: Objection.

5 BY MR. WHITE:

6 Q. I'm sorry. Would still be accurate?

7 A. Okay. Give me a moment to look at
8 it.

9 Q. Sure. Sure.

10 A. (Reviews document.)

11 I think probably my first sentence
12 would stay the same and the rest would -- would
13 change.

14 Q. Okay. In the first sentence, the
15 facts that -- you say "Mrs. Tukes did not have any
16 other risk factors."

17 Would that part stay the same?

18 A. Yes.

19 Q. Okay. You start that sentence by
20 saying "This is significant."

21 If it turns out that Dr. Allen is
22 wrong in his opinions, that would be -- that would
23 not be significant, correct? Or would it --

24 MR. MANDELL: Finish your

1 question.

2 BY MR. WHITE:

3 Q. Let me restart.

4 The significance of Dr. Allen's
5 report would be diminished if he were incorrect in
6 his conclusions, correct?

7 A. Yes.

8 Q. Okay. Okay. If we look down to
9 Section 8 about in the middle of the page
10 "Exposure Assessment and Factual History,"
11 you -- you list PCE, TCE, vinyl chloride, and
12 benzene and some figures there listed in
13 micrograms per liter.

14 Am I correct that you are take --
15 that these are the numbers extracted from
16 Dr. Reynolds' report?

17 A. Yes.

18 Q. Okay. Are you adding any of your
19 own independent opinions to reach these figures,
20 or are you just taking her figures, for lack of a
21 better phrase, copy and pasted into your report?

22 A. I'm not making any independent
23 assessments.

24 Q. Okay. Okay. Mrs. Tukes herself was

1 not in the military, correct?

2 A. Correct.

3 Q. Okay. I think you note this is in
4 there.

5 Mrs. Tukes lived at the -- at a
6 place called the Hostess House on Hadnot Point in
7 June of 1985.

8 Is that your understanding?

9 A. Yes.

10 Q. Where did you get that fact from?

11 A. It may have been her testimony.

12 Q. Okay. Have you ever seen any
13 documents that reference her living at the Hostess
14 House in June of 1985?

15 A. I don't recall.

16 Q. Okay. You state that she lived
17 there at the Hostess House in June of 1985, but
18 was then in the Sherwood Mobile Home Park
19 beginning in July of 1985, correct?

20 A. Yes.

21 Q. So she would have been at the
22 Hostess House for, give or take, a month?

23 A. Hostess House.

24 (Reviews document.)

1 Yes.

2 Q. Okay. Are you aware if the Sherwood
3 Mobile Home Park is on Camp Lejeune or off-base?

4 A. I'm sorry, I can't recall that.

5 Q. Okay.

6 A. It says it's "across the street."

7 Q. Sure. Okay.

8 Are you aware if the water received
9 at the Sherwood Mobile Home Park at that time in
10 the latter half of 1985, are you aware if it was
11 supplied by the United States?

12 MR. MANDELL: Objection.

13 THE WITNESS: I don't recall
14 that.

15 BY MR. WHITE:

16 Q. Okay. Are you -- are you aware if
17 that water was contaminated in any way?

18 MR. MANDELL: Objection.

19 THE WITNESS: I'm not aware
20 of it.

21 BY MR. WHITE:

22 Q. Okay. In your analysis in
23 Mrs. Tukes' report, do you consider any
24 contamination from these five months from July

1 1985 to December 1985, do you consider that in
2 your -- the contaminant levels that you analyze in
3 your report?

4 MR. MANDELL: Objection.

5 THE WITNESS: You said July
6 '85 to December?

7 BY MR. WHITE:

8 Q. Correct.

9 A. No. I -- I have there levels of
10 benzene noted.

11 Q. Okay.

12 A. That's about it.

13 Q. And you're talking about the chart
14 that tracks from page 6 onto page 7?

15 A. Correct.

16 Q. Okay. Do you know if those 3.00
17 benzene figures -- you're looking at the ones on
18 the far right-hand column?

19 A. Yes.

20 Q. The ones in red, are you aware if
21 those are included in the total of 60 down at the
22 bottom of that chart that is on page 7?

23 A. I can't recall, but it's easy to
24 check.

1 Q. Okay. And that would just be?

2 A. Calculator.

3 Q. Okay. And one would check by just
4 totaling up the figures that are not in red ink
5 versus the figures that are in red ink?

6 A. Yes.

7 Q. Okay. Okay. Then you state that
8 from December 1985 to January 1987, Mrs. Tukes was
9 at Tarawa Terrace, right?

10 A. Yes.

11 Q. And --

12 MR. MANDELL: Can I find where
13 you are again?

14 MR. WHITE: What's that?

15 MR. MANDELL: I'm missing
16 where you are.

17 MR. WHITE: Oh, I'm sorry.
18 We're on --

19 MR. MANDELL: Oh, are you
20 on -- I thought you were referring to the
21 report. I'm sorry.

22 MR. WHITE: I'm talking about
23 the exposure --

24 MR. MANDELL: Yep.

1 MR. WHITE: -- figures that
2 she talks about on page 4 and probably
3 onto page 5.

4 MR. MANDELL: Okay. I didn't
5 -- I thought you were reading from a
6 place in the report. You got me confused
7 of it.

8 MR. WHITE: That's okay. It's
9 I'm reading from my outline.

10 MR. MANDELL: Sounds good.

11 MR. WHITE: Okay.

12 BY MR. WHITE:

13 Q. From -- okay. Let me make sure I
14 get this.

15 You state in your report that
16 Mrs. Tukes was at Tarawa Terrace from December '85
17 through January 1987, correct?

18 A. Yes.

19 Q. Okay. So that's about 13 months,
20 give or take, right?

21 A. Yes.

22 Q. Okay. So you just -- for
23 Mrs. Tukes' report, you just took the contaminant
24 levels straight from Dr. Reynolds' report,

1 correct?

2 A. Yes.

3 Q. Is that also the case for the
4 Mr. Mousser and Mr. Howard reports?

5 A. Yes.

6 Q. Okay. If Dr. Reynolds's figures are
7 incorrect for, for example, the 13 months at
8 Tarawa Terrace and the contaminant levels were
9 lower than what she says, that could change the
10 substance of your opinions, correct?

11 MR. MANDELL: Objection.

12 THE WITNESS: It could.

13 BY MR. WHITE:

14 Q. Okay. As for Mrs. Tukes' time at
15 Hadnot Point, if it were determined that there was
16 no contamination in the water system at Hadnot
17 Point for the month that she was at Hostess House,
18 that could change your opinion, correct?

19 MR. MANDELL: Objection.

20 THE WITNESS: Well, I think
21 the Hadnot Point only commented on
22 benzene. So I don't think it would
23 change very substantially.

24 BY MR. WHITE:

1 Q. Okay. It would, if I'm correct,
2 change the 60 micrograms per liter to zero,
3 correct?

4 A. Yes.

5 Q. Okay.

6 MR. MANDELL: Note my
7 objection to that question.

8 BY MR. WHITE:

9 Q. You state -- and we might be onto
10 page -- yeah, we're now onto page 6 in your
11 report. You state that:

12 "The levels of PCE in the Camp
13 Lejeune water supply exceeded the EPA's maximum
14 contaminant levels (MCLs)."

15 Do you know how the EPA determines
16 MCLs?

17 A. I don't recall the methodology.

18 Q. Okay. Did you independently
19 research the MCLs for PCE, TCE, vinyl chloride, or
20 benzene?

21 A. I've looked at the EPA, yes.

22 Q. Okay. Do you know the assumptions
23 that the EPA makes when setting these MCLs?

24 A. I can't recall.

1 Q. Okay. Do you know over what length
2 of time of exposure at or above the MCL the EPA
3 assumes when calculating its MCLs?

4 A. Again, can't recall at the moment.

5 Q. Do you think you -- did you know
6 that information at some point in time?

7 A. When I looked up the MCLs.

8 Q. Okay. How they -- how they
9 determined --

10 So at the time you looked up the
11 MCLs you knew how the MCLs were determined by the
12 EPA?

13 A. I believe so.

14 Q. Okay. Do you know that the MCLs are
15 designed to be acceptable daily drinking water
16 concentrations over a lifetime of exposure that
17 the EPA generally assumes to be 70 years?

18 MR. MANDELL: Objection, but
19 you can answer.

20 THE WITNESS: I trust that
21 you're quoting the right -- the right
22 phrase.

23 BY MR. WHITE:

24 Q. Okay. Do you know if Dr. Reynolds

1 did any analysis in her reports, or in determining
2 the numbers that you use in your reports, that
3 includes similar assumptions of a lifetime of
4 exposure at 70 years at these levels?

5 MR. MANDELL: Objection.

6 THE WITNESS: I don't recall
7 her methodology for putting these tables.

8 BY MR. WHITE:

9 Q. Okay. Are you aware that the EPA
10 take the cumulative dose of a contaminant and
11 averages it out over the person's lifetime --

12 MR. MANDELL: Objection.

13 BY MR. WHITE:

14 Q. -- in determining the MCLs?

15 A. Sounds right.

16 Q. Okay. Do you know if Dr. Reynolds
17 did a similar analysis to reach the figures that
18 are quoted in your report?

19 A. I don't recall.

20 Q. Okay. Do you know what the
21 probability of cancer is from a lifetime of
22 drinking water exposure at the MCL level is?

23 MR. MANDELL: Objection. Form
24 and foundation.

1 You can answer.

2 THE WITNESS: I mean, it's
3 elevated. I can't tell you the number.

4 BY MR. WHITE:

5 Q. Okay. You can't tell me the
6 increase of the probability?

7 A. Correct.

8 Q. Okay. Are you qualified to make
9 that calculation of increased probability due to
10 exposures at or above the MCLs?

11 A. (Pause).

12 MR. MANDELL: Objection, but
13 you can answer.

14 THE WITNESS: Probably.

15 BY MR. WHITE:

16 Q. Okay. Are you qualified to do the
17 quantitative mathematical and statistical analysis
18 of the increase in probability of cancer due to a
19 lifetime of exposure of drinking water at the MCL
20 level?

21 MR. MANDELL: Objection.

22 THE WITNESS: I probably
23 could, but I would engage a statistician.

24 BY MR. WHITE:

1 Q. Okay. Are you qualified to make a
2 quantitative calculation of cumulative dose and
3 average it over a person's lifetime?

4 MR. MANDELL: Objection.

5 THE WITNESS: No.

6 BY MR. WHITE:

7 Q. Okay. Are you qualified to --
8 scratch that.

9 So I'm going to take a look at the
10 tables on page 6, and I'm going to talk about this
11 first one. It's an orange square on the top
12 corner, blue row, and then some green cells in the
13 middle.

14 Can you tell me what your
15 understanding of the figures are in the first
16 green column from the left under TCE?

17 A. So to me looks like these were the
18 concentrations per month --

19 Q. Okay.

20 A. -- at the Tarawa Terrace.

21 Q. Okay. At any point, did you have a
22 table of these figures beyond the rows quoted here
23 or the rows listed here?

24 MR. MANDELL: Objection.

1 THE WITNESS: I don't recall
2 that.

3 BY MR. WHITE:

4 Q. Okay. I see there's a red cell
5 immediately underneath the orange cell that says
6 "Exposure Dates."

7 Do you know what the -- is that --
8 is the color of that cell supposed to signify
9 anything?

10 A. I mean, it's a partial month for
11 once.

12 Q. Okay. Is that what you intended to
13 denote by that cell being colored red?

14 MR. MANDELL: Objection.

15 THE WITNESS: It -- it is or
16 maybe that was when she was not -- yeah,
17 I think it was a partial month.

18 BY MR. WHITE:

19 Q. Okay. Did you prepare this table
20 that's in here or was it supplied?

21 A. No, I did.

22 Q. Okay. What did -- what did you
23 intend to convey by making the cell red?

24 A. I think it was -- give me just a

1 second.

2 Q. Sure.

3 A. (Reviews document.)

4 Yeah, I think that's what I had.

5 Q. Okay. Did you copy and paste this
6 table out of any materials prepared by
7 Dr. Reynolds?

8 A. I believe it was from, yes,
9 Dr. Reynolds.

10 Q. Okay. Okay. Take -- okay.
11 And so the figures in the green
12 cells, what are the units of those?

13 A. So microgram per ML for that certain
14 month.

15 Q. Okay. So microgram --

16 A. I'm sorry. Microgram per liter.
17 Sorry. My bad.

18 Q. That's okay.

19 Is it -- so the units of these green
20 cells would be microgram per liter per month?

21 MR. MANDELL: Objection.

22 THE WITNESS: Per each month,
23 yes.

24 BY MR. WHITE:

1 Q. Yeah. For that particular month.

2 For the month of January 1986, there
3 were 0.18 micrograms per liter that month?

4 A. January? Yes, uh-huh.

5 Q. Okay. Your understanding -- so just
6 taking that cell for an example, is your
7 understanding of that number the total micrograms
8 she would have been exposed to that month or do
9 you -- let me ask it this way.

10 What is your understanding of 0.18
11 in that cell?

12 A. So it was the micrograms per liter
13 in the water for that month.

14 Q. Is that the total amount that she
15 was exposed to? Is that an average concentration
16 across the month or some other metric?

17 MR. MANDELL: Objection, but
18 you can answer.

19 THE WITNESS: That's the
20 concentration.

21 BY MR. WHITE:

22 Q. Okay.

23 A. Per month.

24 Q. Is it averaged over the course of

1 the month, or is it taken at any one particular
2 day?

3 A. I actually don't recall --

4 Q. Okay.

5 A. -- the exact.

6 Q. Okay. Then the numbers down at the
7 bottom of this column, 3.65, 82.85 and so on, what
8 units are these in?

9 A. So these are micrograms per liter in
10 per month or total months. So that's the
11 cumulative.

12 Q. So that would be -- so that would be
13 taking the first column, 3.65 micrograms per liter
14 per 13 months listed in that column, give or take?

15 A. Yes.

16 Q. Taking into account the partial one
17 at the top?

18 A. Yes.

19 Q. Okay. So that would be a figure --
20 that is a concentration figure across 13 months?

21 A. That's the total amount for 13
22 months.

23 Q. Okay. So your -- okay.

24 Would the table -- the corresponding

1 tables in the Mousser and Tukes -- in the Mousser
2 and Howard reports have the same units that we
3 just discussed with respect to the Tukes report?

4 A. Yes.

5 Q. Okay. So the correct unit for the
6 figures at the bottom of this first table would be
7 micrograms per liter per month?

8 A. Yes.

9 Q. Or micrograms per liter?

10 MR. MANDELL: Objection.

11 THE WITNESS: Micrograms per
12 liter per month.

13 BY MR. WHITE:

14 Q. Okay. Totaled across those 13 or so
15 months?

16 A. Yes.

17 Q. Okay. Have you ever seen in any of
18 the toxicological or epidemiological studies
19 instances where monthly concentrations like that
20 were totaled up over a period of time?

21 A. I think I had some of these quoted.
22 If you don't mind, I'll look at page 13.

23 Q. Sure.

24 A. So I quoted some of the studies that

1 some of these were per milligram, some of these
2 were parts per billion, and some of these
3 microgram per liter per month.

4 Q. Okay.

5 A. So these were the ones that I
6 considered.

7 Q. Taking -- let's just take one for an
8 example. The first bullet point. Cumulative
9 exposure to 27.1 to 44.1 milligrams of PCE.

10 A. Uh-huh.

11 Q. And the equivalent corresponding
12 number for that would be -- if we turn back to the
13 table on page 6 -- 82.85, that PCE number there?

14 MR. MANDELL: Objection.

15 THE WITNESS: So one is
16 microgram per liter and the other one is
17 milligram. So a little bit of a
18 different unit.

19 BY MR. WHITE:

20 Q. Okay. To convert micrograms per
21 liter to milligrams per liter, one would shift the
22 decimal point over 3 spaces, correct?

23 MR. MANDELL: Objection.

24 THE WITNESS: Multiply by a

1 thousand.

2 BY MR. WHITE:

3 Q. Okay. Okay. The figure in the
4 first bullet point is in milligrams, correct?

5 I'm sorry.

6 The first bullet point on page 13,
7 that figure is in milligrams, correct?

8 A. Yes.

9 Q. Okay. And then the figures at the
10 bottom of Table 6 are in micrograms per liter,
11 correct?

12 MR. MANDELL: Objection.

13 THE WITNESS: Micrograms per
14 liter per month, yes.

15 BY MR. WHITE:

16 Q. Okay. If I wanted to see how --
17 mathematically how that figure 82.85 micrograms
18 per liter per month would compare to the 27.1 to
19 44.1 milligrams in that first bullet, how would I
20 do that?

21 MR. MANDELL: Objection.

22 THE WITNESS: So if you look
23 at the bullet points on the same page, I
24 mean, you can kind of compare these. So

1 microgram per liters are, you know, they
2 have a thousand. So you would multiply
3 it by a thousand.

4 BY MR. WHITE:

5 Q. Sure.

6 I'm just talking about the first
7 one. The one that's listed in milligrams.

8 If I wanted to compare apples and
9 oranges from those milligrams to the micrograms
10 per liter per month in Table 6, how would I do so?

11 MR. MANDELL: Objection.

12 THE WITNESS: I think you
13 multiply by a thousand. So they would
14 become 27,100 and 44,100.

15 BY MR. WHITE:

16 Q. Okay. To get from milligrams to
17 micrograms per liter a month?

18 MR. MANDELL: Objection.

19 THE WITNESS: Yes, to change
20 them to a proper unit.

21 BY MR. WHITE:

22 Q. Okay. The exposure figure in that
23 first bullet point, there is not a time component
24 listed there, correct?

1 A. Correct.

2 Q. Okay. Nor is there a denomination
3 of over how much water this 27.1 to 44.1
4 milligrams was distributed, correct?

5 A. Correct.

6 Q. Okay. And there is such a
7 concentration component to the table -- figures in
8 Table 6, correct?

9 A. Yes, table page 6 has kind of both.

10 Q. Okay. And -- yeah.

11 And page 6, that would also have a
12 time component too over the course of these months
13 listed, correct?

14 A. Yes.

15 Q. Okay. So is it your testimony that
16 to compare the 27.1 to 44.1 milligrams PCE to the
17 82.85 milligrams of PCE listed in Table 6, you
18 would multiply the 27.1 by a thousand and the 44.1
19 by a thousand?

20 MR. MANDELL: Objection.

21 THE WITNESS: Yes.

22 BY MR. WHITE:

23 Q. Okay. Okay.

24 A. You're making me doubt my math now.

1 Q. I -- I doubt on that.

2 A. Okay.

3 Q. If you look at the table at the
4 bottom of page 6, the cells inside of this table,
5 most of them are 0s, but I see figures in the
6 rightmost column and this continues onto page 7.

7 What units are these figures in?

8 A. Same. Microgram per liter per
9 month.

10 Q. Okay.

11 A. Or I shouldn't say per month.
12 Microgram liter months.

13 Q. Microgram liter months.

14 A. Yeah.

15 Q. Okay. And then the 60 at the bottom
16 far right cell -- and this is on spilling over
17 onto page 7 -- what units would that 60 be in?

18 A. Same.

19 Q. Micrograms?

20 A. Liter months.

21 Q. Per liter months.

22 Okay. And the corresponding tables
23 in the Mousser and Howard reports would be the
24 same, correct?

1 A. Yes.

2 Q. Okay.

3 A. Yeah. Can I just say? Mousser and
4 Howard only had one table as opposed to two tables
5 in Tukes.

6 Q. Okay.

7 A. Yeah.

8 Q. And am I correct that Mrs. Tukes had
9 two tables because she was at one point alleging
10 to live on Hadnot Point and at another point
11 alleging to have lived on Tarawa Terrace, correct?

12 A. Yes.

13 Q. Okay. Have you ever looked up the
14 MCL for --

15 A. I'm sorry. Can I correct?

16 Q. Sure.

17 A. I think she visited Hadnot Point at
18 some point in time too, not just lived there.

19 Q. Okay.

20 A. Yeah.

21 Q. How is that fact included in your
22 analysis?

23 Well, let me ask it this way.

24 The fact that she visited Hadnot

1 Point, does that change any of the exposure
2 numbers listed in that table that total up to 60
3 that we were just discussing?

4 A. No, I don't think so.

5 Q. Okay. Early in the report, you
6 quoted the MCL for PCE.

7 Do you know what the MCL is for TCE?

8 A. I'd have to look and see. I would
9 have quoted it in my analysis.

10 Q. Okay.

11 A. (Reviews document.)

12 I'm not really sure if it's quoted.
13 So I can't recollect the MCL.

14 Q. Okay. Do you know if it's quoted in
15 your Mousser or Howard reports?

16 A. I can check.

17 Q. Okay. I'm also going to ask about
18 the MCLs for vinyl chloride and benzene. If you'd
19 like to check for all three as you're going
20 through the reports.

21 A. Yes.

22 (Reviews document.)

23 Yes, I quoted 5 micrograms per liter
24 for PCE and then 2 micrograms per liter for vinyl

1 chloride and then 5 microgram per liter for
2 benzene.

3 Q. Okay. What units are those MCLs in?

4 A. Microgram per liter.

5 Q. Okay. Is that sometimes referred to
6 as parts per billion?

7 A. Yes.

8 Q. Okay. Are those interchangeable at
9 least when talking about liquid contaminants in
10 this way?

11 A. The parts per billion versus
12 microgram per liter?

13 Q. Correct.

14 A. I believe so, yes.

15 Q. Okay. You state in -- if we can
16 turn back to Mrs. Tukes' report, you state that:

17 "Mrs. Tukes' exposure levels meet or
18 exceed the thresholds identified in
19 epidemiological studies linking these contaminants
20 to RCC risks."

21 Just as a housekeeping thing, RCC
22 means renal cell carcinoma?

23 A. Yes.

24 Q. Okay. Which chemicals in your

1 analysis in Mrs. Tukes' report meet or exceed
2 those threshold limits?

3 MR. MANDELL: Objection.

4 THE WITNESS: I would have to
5 look at where I wrote that.

6 (Reviews document.)

7 Yes, TCE and PCE.

8 BY MR. WHITE:

9 Q. Okay. So vinyl chloride would not
10 exceed those thresholds for Mrs. Tukes?

11 MR. MANDELL: Objection.

12 THE WITNESS: Give me just a
13 second.

14 BY MR. WHITE:

15 Q. Sure.

16 A. (Reviews document.)

17 I mean, based on what I quoted in
18 Mr. Howard's, you know, 13 is above the level.

19 Q. For Mr. Howard?

20 A. Well, no. The -- the levels that
21 are established to be above the MCL.

22 Q. Okay. Are you using the MCL as the
23 thresholds identified in the epidemiological
24 studies as you use that term on page 7 --

1 MR. MANDELL: Objection.

2 BY MR. WHITE:

3 Q. -- from Mrs. Tukes' report?

4 A. No, I use it as whatever is defined
5 by EPA just as it is defined.

6 Q. Okay. So you are taking the MCLs
7 set forth by EPA as the thresholds identified in
8 epidemiological studies linking these contaminants
9 to RCC risks?

10 MR. MANDELL: Objection. That
11 misstates the testimony, but you can
12 answer.

13 THE WITNESS: No. So EP --
14 I'm using it as EPA's kind of standard
15 level for contamination that they
16 mention.

17 BY MR. WHITE:

18 Q. Okay. Let me ask.

19 What are the thresholds identified
20 in the epidemiological literature that you
21 reference on page 7 for Mrs. Tukes', for example,
22 vinyl chloride exposure?

23 A. Are we looking at the table or are
24 we looking at anything else?

1 Q. Looking at the table, which of -- so
2 her -- the bottom of the table on page 6 under
3 vinyl chloride.

4 A. Okay. Page 6. Uh-huh.

5 Q. It lists 13.04.

6 A. Uh-huh.

7 Q. Is it your testimony that that
8 number exceeds the thresholds identified in
9 epidemiological studies?

10 A. Exceeds the EPA MCL.

11 Q. Okay.

12 A. Epidemiological studies, there are
13 some that are quoted, and these are not
14 specifically quoting vinyl chloride in my -- on
15 the page 13.

16 Q. Okay.

17 A. But if I look at the section that
18 talks about vinyl chloride and benzene, I don't
19 think I put the number or the level there.

20 Q. Okay. Without it being in your
21 report, sitting here today, are you able to tell
22 me what that level is based on the literature you
23 cite here?

24 A. I mean, I would probably refer to

1 the EPA MCL.

2 Q. Okay. And you would be -- in the
3 absence of the levels for vinyl chloride that --
4 that aren't specifically mentioned in your report,
5 you would turn to the EPA's MCL for vinyl
6 chloride, correct?

7 MR. MANDELL: Objection.

8 Misstates the testimony, but you can
9 answer.

10 THE WITNESS: Yes, or to the
11 other kind of part about the volatile
12 compounds that are kind of summed up
13 together in some of these numbers that I
14 mention on page 13.

15 BY MR. WHITE:

16 Q. Okay. How about for benzene?
17 And I think this is the table on
18 page 7, the 60.

19 Which thresholds identified in
20 epidemiological studies does Mrs. Tukes' exposure
21 at 60 exceed?

22 A. Same answer as for vinyl chloride.

23 Q. Okay. None of the -- I'm looking at
24 the list of studies you gave on page 13.

1 I don't see any of those that are
2 specifically benzene.

3 Is that -- am I reading that right?

4 A. I think they summed it up as
5 volatile compounds.

6 Q. Okay. And that would -- your
7 understanding of volatile compounds would be sort
8 of -- would be TCE, PCE, vinyl chloride, and
9 benzene combined?

10 A. Yes.

11 Q. Okay. Any other thresholds on which
12 you rely to say that Mrs. Tukes' benzene exposure
13 exceeds the thresholds identified in
14 epidemiological studies?

15 MR. MANDELL: Objection, but
16 you can answer.

17 THE WITNESS: I remember I
18 think there were some supplemental tables
19 in the Bove I think the papers I've seen.

20 BY MR. WHITE:

21 Q. Do you remember which Bove paper it
22 was?

23 A. I don't recall it. I think it's
24 four of them. We can pull and look.

1 Q. Okay. That's okay. We'll get
2 there.

3 A. Okay.

4 Q. What is -- have you reviewed any
5 studies that calculates something called a
6 "threshold dose" for any of the four chemicals on
7 which you opine?

8 A. Threshold dose. That specific term
9 I can't recall.

10 Q. Okay. When you say "thresholds
11 identified in epidemiological studies," do you
12 mean the figures listed on page 13 of Mrs. Tukes'
13 report and, as you mentioned a couple times, the
14 EPA MCLs.

15 Are there any -- is that what you
16 mean by "thresholds identified in epidemiological
17 studies"?

18 MR. MANDELL: Objection.

19 THE WITNESS: Yes.

20 BY MR. WHITE:

21 Q. Okay. Any other bases for
22 determining the thresholds identified in
23 epidemiological studies?

24 A. I don't recall the specific studies

1 that I quoted if they had the threshold listed per
2 se.

3 Q. Okay.

4 A. But mainly this was both, yes.

5 Q. Okay. Are you -- did any of the
6 studies you reviewed set out to calculate a
7 threshold exposure level above which one could
8 expect to see these outcomes and below which the
9 risks are -- are not increased?

10 MR. MANDELL: Objection.

11 THE WITNESS: I don't think
12 any, other than what I quoted.

13 BY MR. WHITE:

14 Q. Okay. You have in the Mousser and
15 -- in the Mousser and Howard reports, you have a
16 bullet point list of exposures similar to the one
17 on page 13 of Mrs. Tukes' report.

18 And just to be sure that we're all
19 looking at the same thing. In Mr. Mousser's
20 report that list of materials is also on page 13
21 of Mr. Mousser's report, which I believe is
22 Exhibit 3.

23 Would your answers be the same for
24 Mr. Mousser with respect to these levels as they

1 were for Mrs. Tukes?

2 MR. MANDELL: Objection.

3 THE WITNESS: They had
4 different levels of exposure.

5 BY MR. WHITE:

6 Q. Mrs. Tukes and Mr. Mousser had
7 different levels of exposure?

8 A. Yes.

9 Q. Okay. When you say -- in
10 Mr. Mousser's report, if you turn to page --
11 page 6 and sort of in the middle there, you say:
12 "Mr. Mousser's exposure levels meet
13 or exceed the thresholds identified in
14 epidemiological studies linking these contaminants
15 to these cancers -- this cancer."

16 The thresholds you reference there
17 in that sentence, would those be those listed on
18 page 3 of Mr. Mousser's report?

19 A. Those would be listed on page 5.

20 Q. I'm sorry. Page 13.

21 A. Page 5. Oh, sorry. Yes, exceeding.
22 Exceeded the EPA MCLs.

23 Q. Uh-huh.

24 A. And then grouping based on kind of

1 level of exposure, then it would be applicable to
2 the page 13.

3 Q. Okay.

4 A. Does that make sense?

5 Q. I think so.

6 A. Okay.

7 Q. You refer to "meet or exceed the
8 thresholds identified in epidemiological studies"
9 on page 6 of Mr. Mousser's report.

10 A. Right.

11 Q. Right?

12 A. Uh-huh.

13 Q. If I wanted to see what those
14 thresholds are identified in epidemiological
15 studies, I would turn to page 13 of Mr. Mousser's
16 report and look at those bullet points, and
17 perhaps I would also turn to the EPA's MCLs for
18 the applicable chemicals?

19 MR. MANDELL: Objection, but
20 you can answer.

21 THE WITNESS: Yes, both.

22 BY MR. WHITE:

23 Q. Okay. Both.

24 I think you can guess where I'm

1 going next, but if we could look at Mr. Howard's
2 report, and that I believe is Exhibit 2.

3 And if you turn to page 5 in
4 Mr. Howard's report, you say:

5 "Mr. Howard's exposure levels meet
6 or exceed thresholds in epidemiological studies
7 linking these contaminants to RCC risks."

8 If I wanted to find those thresholds
9 identified in epidemiological studies that you
10 reference there on page 5, I would turn to the
11 bullet points that begin on page 10 of
12 Mr. Howard's report and spill onto page 11 and
13 refer to the EPA's MCLs for the applicable
14 chemicals, correct?

15 A. Yes.

16 MR. MANDELL: Objection, but
17 you can answer.

18 THE WITNESS: Yes.

19 BY MR. WHITE:

20 Q. Okay. Thank you.

21 Okay. Let's -- let's turn back to
22 Mrs. Tukes' report as a -- as a guide to walk
23 through these cites.

24 With respect to PCE exposure, are

1 you able to give me a number above which one could
2 expect to see causation of kidney cancer UTC and
3 below which the chemical could not cause such
4 cancer?

5 MR. MANDELL: You can answer.

6 THE WITNESS: Can I give you
7 that number? No.

8 BY MR. WHITE:

9 Q. Okay. Is that number -- how would
10 -- if you wanted to know that number, what would
11 you do to figure that out?

12 A. I mean, I would --

13 MR. MANDELL: Objection.

14 THE WITNESS: -- look at the
15 cumulative exposures outlined by both.

16 BY MR. WHITE:

17 Q. Okay. If I wanted to know the
18 threshold amount of PCE -- I'll phrase it this way
19 because I can't remember what I asked my first one
20 about.

21 If I wanted to know the threshold
22 amounts of PCE or TCE or vinyl chloride or benzene
23 above which one could expect to see causation of
24 kidney cancer UTC -- UTUC for those chemicals and

1 below which those cancers could not be caused by
2 those chemicals, how would you determine that?

3 MR. MANDELL: Objection.

4 Asked and answered, but you can answer it
5 again.

6 THE WITNESS: Looking again
7 at the levels of exposures outlined by
8 both.

9 BY MR. WHITE:

10 Q. Okay. Let's take a look at page 13
11 of -- at page 13 of the Tukes report.

12 You state that Mrs. Tukes' exposure
13 was "substantial."

14 What is the definition of
15 substantial that you've used? Or what is the
16 definition of substantial as you use it here in
17 Mrs. Tukes' report?

18 A. I meant, you know, significant.

19 Q. And what would be the definition of
20 that?

21 MR. MANDELL: Objection.

22 THE WITNESS: Something that
23 kind of shows up in this epidemiological
24 kind of numbers and reports exceeding the

1 thresholds.

2 BY MR. WHITE:

3 Q. Okay. Where does -- can you give me
4 an example of an exposure amount that would
5 not -- that would be insubstantial?

6 A. I mean --

7 MR. MANDELL: Objection.

8 THE WITNESS: -- close to
9 zero.

10 BY MR. WHITE:

11 Q. Close to zero? Okay.

12 One of the numbers, just take, for
13 example, the fourth bullet point down --

14 A. Uh-huh.

15 Q. -- on page 13. You list cumulative
16 exposure of 1 to 3100 micrograms per liter month
17 of TCE.

18 Is it your testimony that any
19 exposure within that range would be a substantial
20 exposure?

21 MR. MANDELL: Objection.

22 THE WITNESS: Yes, based on
23 the -- on the evidence that's published.

24 BY MR. WHITE:

1 Q. Okay. Below that, there's a similar
2 range of 1 to 155 micrograms per liter month of
3 PCE.

4 Same answer. Is that any exposure
5 within that range, in your view, substantial?

6 MR. MANDELL: Objection.

7 THE WITNESS: Yes.

8 BY MR. WHITE:

9 Q. Okay. Below that one, cumulative
10 exposure of 1 to 4600 micrograms per liter month
11 of exposure to all compounds at Camp Lejeune.

12 Is it your testimony that exposure
13 within that range would be substantial?

14 MR. MANDELL: Objection.

15 THE WITNESS: Yes.

16 BY MR. WHITE:

17 Q. Okay. So if one had exposure to
18 1 microgram per liter month of TCE for their time
19 at Camp Lejeune, that, in your view, would be a
20 substantial exposure?

21 MR. MANDELL: Objection.

22 THE WITNESS: Well, I mean,
23 I'm not making that call. I'm just
24 relying on the experts who make that

1 call, yes.

2 BY MR. WHITE:

3 Q. Okay. I'm just trying to figure out
4 where substantial begins in that range.

5 That range includes 1, right?

6 MR. MANDELL: Objection.

7 THE WITNESS: Based on --
8 yes. Based on the quoted literature,
9 yes.

10 BY MR. WHITE:

11 Q. Okay. So if one had exposure to
12 1 microgram per liter month of TCE, for example,
13 that, in your view, would be substantial exposure
14 because it falls within that range referenced in
15 the fourth bullet point on page 13 of Mrs. Tukes'
16 report?

17 MR. MANDELL: Objection.

18 THE WITNESS: Potentially.

19 BY MR. WHITE:

20 Q. Potentially.

21 What would it depend on?

22 A. I mean, on how many compounds, you
23 know, kind of circumstances.

24 Q. Okay. If one had exposure to

1 1 microgram per liter month of TCE, 1 microgram
2 per liter month of PCE, and by definition it would
3 be 2 micrograms per liter month of exposure to all
4 compounds at Camp Lejeune. So 1, 1, 2 across
5 those bullet points.

6 Would that, in your view, be a
7 substantial exposure?

8 MR. MANDELL: Objection.

9 THE WITNESS: Yeah, that's
10 more than 1. It's already 2.

11 BY MR. WHITE:

12 Q. Okay. Okay. Let's take a look at
13 -- let's take a look at, if you could, still on
14 page 13, that first bullet point. Cumulative
15 exposure to 27.1 to 44.1 milligrams of PCE.

16 Am I correct that that refers to the
17 Aschengrau study, Footnote 8?

18 A. Yes.

19 Q. Okay. That was a case-control
20 study, correct?

21 A. If you'd like to pull that paper,
22 I'm happy to look at it --

23 Q. Okay.

24 A. -- to refresh the memory.

1 Q. You're one step ahead of me, Doctor.
2 While he's digging that out, am I
3 correct that a case-control study compares exposed
4 people with a diagnosis -- the cases -- versus a
5 group of people without the diagnosis, also known
6 as the controls?

7 Is that basically correct in
8 layman's terms?

9 A. Yes. I mean, it's not only
10 pertaining to exposure cases, but any kind of
11 cases.

12 Q. Sure.

13 It's a -- it's a common structure --

14 A. It's --

15 Q. -- for these guys?

16 A. -- people with something of interest
17 and then controls.

18 Q. Okay. Okay.

19 (Document marked for
20 identification as Exhibit 14.)

21 BY MR. WHITE:

22 Q. I'm going to hand you what's been
23 marked as Exhibit 14.

24 Is that the Aschengrau study that

1 you cite here?

2 A. Yes.

3 Q. Okay. Am I correct this case
4 examined the folks with the diagnoses in question
5 in this case -- kidney cancer is what we're going
6 to focus on -- using a latency period; is that
7 right?

8 A. Yes.

9 Q. Okay. And using a latency period in
10 a study like this is presuming a lag time between
11 exposure and the later cancer, correct?

12 A. Yes.

13 Q. Okay. So just by example, if
14 someone in the study with a diagnosis of kidney
15 cancer was diagnosed in 1985 and the latency
16 period were 15 years, the authors would consider
17 in this case their exposure up until 1970?

18 A. Say it again.

19 Q. Yeah. Sure.

20 For example, if a case in this study
21 --

22 A. Uh-huh.

23 Q. -- someone with kidney cancer were
24 diagnosed with kidney cancer in 1985 and if the

1 latency period the authors used was 15 years, the
2 authors would look at the exposure for that person
3 up until 15 years before their diagnosis?

4 A. Yes.

5 Q. Okay. And -- okay.

6 And if they were diagnosed in 1985,
7 they would look at exposure prior to 1970, 15
8 years before?

9 A. Yes.

10 Q. Okay. And if the latency period
11 were ignored, then all that exposure up until the
12 date of diagnosis would be considered, correct?

13 MR. MANDELL: Objection.

14 I'm so sorry. Can you? Can
15 you? I missed that one.

16 MR. WHITE: No, no, that's
17 fine.

18 MR. MANDELL: I apologize.

19 MR. WHITE: It's going to
20 happen.

21 MR. MANDELL: Yeah. Thank
22 you.

23 BY MR. WHITE:

24 Q. If the authors -- the authors -- let

1 me do it this way.

2 If the latency period were ignored
3 in an exposure study like this, then all exposure
4 up until the date of diagnosis would be considered
5 and there wouldn't be that 15-year lag time,
6 correct?

7 A. Yes, I think that's what they --
8 that's what they did.

9 Q. Okay. If you could do me a favor
10 and look at page 6 of the Aschengrau study. This
11 would be internally paginated number 289, and it
12 gives some odds ratios for bladder cancer, kidney
13 cancer, and leukemia.

14 Were they able to calculate any odds
15 ratios for kidney cancer when they assumed a
16 15-year latency period?

17 A. No, because they didn't put it in
18 the latency area.

19 Q. Okay. Do you know if there were any
20 cases that were considered exposed when they used
21 a 15-year latency period?

22 A. I saw it in the text before. So I
23 think they did some estimates, but with adding the
24 latency, these were not significant. So that's

1 why they didn't quote, I believe.

2 Q. Okay. So if you look at -- we're
3 still on page 289 -- at the column, the rightmost
4 column starting with "Thirteen bladder cancer, 6
5 kidney cancer, and 7 leukemia cases"?

6 A. Hold on.

7 Q. I'm sorry.

8 A. Where is it again?

9 Q. I'm sorry. I was looking at the
10 wrong place.

11 A. Okay. We're looking at without
12 latency?

13 Q. Yeah.

14 A. Okay.

15 Q. How many kidney cancer cases were
16 they looking at whenever they included latency?

17 MR. MANDELL: Are you looking
18 at the chart?

19 THE WITNESS: I think he's
20 looking at the chart.

21 BY MR. WHITE:

22 Q. I am looking at --

23 A. Table 4?

24 Q. Yes.

1 A. Okay. How many kidney cases without
2 latency were zero.

3 Q. Okay. Do you see any statistically
4 significant odds ratios for kidney cancer on the
5 chart on Table 4 at the bottom of page 289?

6 A. I mean, there's a wide range of the
7 interval.

8 Q. Does that make it more or less
9 statistically significant?

10 A. You know, it's hard to say with such
11 a small number of patients, and I think that's why
12 they had such a wide range of confidence interval.

13 Q. Okay. Would the range of the
14 confidence interval for kidney cancer in this
15 Aschengrau case -- in this Aschengrau study
16 include the potential that there is no causal
17 effect between PCE and kidney cancer?

18 MR. MANDELL: Objection.

19 THE WITNESS: So it looks
20 like they still got a number over 1,
21 which seems to have pushed, you know,
22 past the significance point.

23 But if -- yes, by definition
24 if it's less than 1, then there would be

1 no increased risk --

2 BY MR. WHITE:

3 Q. Okay.

4 A. -- when they -- when they read the
5 numbers.

6 Q. Okay. So I'm looking across from
7 kidney cancer at the bottom in the second row up,
8 and for any exposure it says 1.23 and then below
9 that it has parentheses 0.40 to 3.11.

10 Am I correct that that 0.40 to 3.11
11 is the confidence interval?

12 A. Yes.

13 Q. Okay. And the fact that that
14 confidence interval includes 1 and below means
15 that it is not statistically significant using 95
16 percent confidence intervals?

17 A. I don't know if that's the
18 definition, but it would be better to have it over
19 1 completely.

20 Q. Okay.

21 A. Yeah.

22 Q. Okay. You use -- looking back to
23 page 13, you use cumulative exposure of 27.1 to
24 44.1 milligrams.

1 Can you show me where in the study
2 that you pull that figure from?

3 A. All right. You're going to give me
4 a few minutes --

5 Q. Sure.

6 A. -- to look at this.

7 (Reviews document.)

8 It's on the page 289.

9 Q. Uh-huh.

10 A. And on the left side.

11 Q. Okay. I think I see where you're
12 referring to.

13 A. Uh-huh.

14 Q. Is it --

15 A. The 90th percentiles?

16 Q. Yes.

17 And that's of the exposed controls,
18 correct?

19 A. Exposed controls, yes.

20 Q. Okay. So that means the controls in
21 the study would not have kidney cancer, correct?

22 MR. MANDELL: Objection.

23 THE WITNESS: Yes.

24 BY MR. WHITE:

1 Q. Okay. So that is the amount of
2 exposure that the group of participants had at the
3 90th percentile and did not develop kidney cancer,
4 correct?

5 MR. MANDELL: Objection.

6 THE WITNESS: Give me just a
7 second to read it.

8 (Reviews document.)

9 I mean, reading it that's --
10 it looks like the 90th percentile.
11 That's what it was, yes.

12 BY MR. WHITE:

13 Q. Of the control group?

14 MR. MANDELL: Objection.

15 THE WITNESS: Exposed
16 controls, yes.

17 BY MR. WHITE:

18 Q. And the control group would be
19 people who did not develop kidney cancer, correct?

20 MR. MANDELL: Objection.

21 THE WITNESS: Yes.

22 BY MR. WHITE:

23 Q. Okay. If you take a look on the
24 next page.

1 Let's see what we're looking at
2 here. Okay. Tell you what.

3 Let's go ahead and look at the next
4 bullet point down in page 13 of Mrs. Tukes' report
5 Exhibit 1, and it says sustained exposure to
6 0.25.3 parts per billion of TCE.

7 And I understand you to be citing
8 the Andrew study, which is page -- Footnote 18?

9 A. Yes.

10 Q. Okay. When you say "sustained
11 exposure" there, what do you mean by sustained?

12 A. If you pulled the article, we can
13 probably --

14 Q. Okay.

15 A. -- figure it out.

16 MR. WHITE: Okay. Can we go
17 off the record while we sort this out?

18 MR. MANDELL: Sure.

19 MR. WHITE: Thanks.

20 THE VIDEOGRAPHER: Time is
21 1:07 PM. We are now off the record.

22 (A recess was taken.)

23 THE VIDEOGRAPHER: Time is
24 1:17 PM. We are now on the record.

1 BY MR. WHITE:

2 Q. All right. Thank you, Doctor.
3 We're back after a short break.

4 Did you talk to anybody about the
5 substance of your testimony while you -- while we
6 were on a short break?

7 A. No.

8 Q. Okay. I want to go back to the
9 Aschengrau study, which I believe was Exhibit 14,
10 I believe.

11 A. And may I make --

12 MR. MANDELL: 14.

13 THE WITNESS: -- a comment
14 with that to follow up on one of the
15 questions that I answered earlier or?

16 BY MR. WHITE:

17 Q. You would like to adjust your
18 answer?

19 A. Yes.

20 Q. Okay. Please do.

21 A. Okay. So I looked at the
22 methodology for this Aschengrau study. So the
23 90th percentile they referred, it was for all the
24 subjects in the study, even though they actually

1 only quoted for the case exposed control, but that
2 was something that they calculated for the whole
3 kind of cohort of the patients.

4 Q. Including the cases --

5 A. Yeah.

6 Q. -- and controls together?

7 A. Yeah. So they only -- they reported
8 90th percentile above which, you know, they
9 considered high exposure.

10 Q. And that would be including the
11 controls as well, correct?

12 A. Yes, that's the assumption I'm
13 getting from reading the methodology --

14 Q. Okay.

15 A. -- a little bit closely, more
16 closely now.

17 Q. Okay. So is your testimony that --
18 if we're looking on internally paginated page 289?

19 A. Uh-huh.

20 Q. And we're looking towards
21 three-quarters the way down that first column, the
22 sentence says "The 90th percentiles."

23 Oh, I'm sorry. All right. We'll
24 turn back to page 289 of the Aschengrau study.

1 About three-quarters of the way down
2 that first column, the sentence says:

3 "The 90th percentiles among exposed
4 controls were 27.1 and 44.1 milligrams,
5 respectively."

6 Is it your testimony that that is
7 the 90th percentile for both exposed and -- for
8 both exposed controls and exposed cases together?

9 A. Yes.

10 Q. Okay. Even though it says just
11 controls there?

12 A. Yes.

13 Q. Okay. All right. If we could turn
14 to the next page.

15 And about two-thirds down the first
16 column at the end of the first paragraph after
17 "Discussion," it says that:

18 "No kidney cancer cases were
19 considered exposed when latency was taken into
20 account, and no meaningful increases in the risk
21 of kidney cancer were detected without latency."

22 Am I correct that this sentence
23 means that when the authors assumed that there
24 would be at least a 15-year latency period between

1 exposure and cancer diagnosis that there were no
2 kidney cancers in the case?

3 MR. MANDELL: Objection to
4 form, but you can answer.

5 THE WITNESS: Okay. So we're
6 talking about the first paragraph after
7 "Discussion"?

8 BY MR. WHITE:

9 Q. Uh-huh.

10 A. Okay. So they said because of small
11 numbers, the relative risk could not be estimated
12 because of the latent period, you know,
13 calculations with or without. So they reference
14 the small numbers when they were making this
15 discussion.

16 Q. In the sentence where they say
17 "Because of small numbers," that's with -- with
18 respect to bladder cancer, correct?

19 A. Yes.

20 Q. Okay. And then the next sentence
21 with respect to kidney cancer, it says:

22 "No kidney cancer cases were
23 considered exposed when latency was taken into
24 account, and no meaningful increases in the risk

1 of kidney cancer were detected without latency."

2 Am I correct that when the authors
3 assume at least a 15-year lag time between
4 exposure and diagnosis, there were, in fact, no
5 exposed kidney cancer cases in the cohort that
6 they studied?

7 MR. MANDELL: Objection to
8 form, but you can answer.

9 THE WITNESS: Yes, that the
10 latency that they were observing was kind
11 of led them to that -- to that
12 conclusion.

13 BY MR. WHITE:

14 Q. Okay. And where they say "no
15 meaningful increases in the risk of kidney cancer
16 were detected without latency," am I correct that
17 that refers to the table on the preceding page
18 where the confidence intervals include the risk
19 ratio of 1?

20 A. (Reviews document.)

21 Yes.

22 Q. Okay. Okay. We can set that one
23 aside.

24 Doctor, do you know what a

1 dose-response curve is?

2 A. I think so, yes.

3 Q. Could you tell me what a
4 dose-response curve is?

5 A. I mean, looking at kind of how the
6 change in dose affects the response of the
7 patients.

8 Q. Okay. Am I correct that a positive
9 monotonic dose-response curve means that, as the
10 exposure to the substance goes up, the risk
11 associated with it also goes up?

12 A. I mean, I haven't looked at the
13 statistical definition but sounds about right.

14 Q. Okay. Okay. In your opinion, is a
15 nonmonotonic dose-response curve consistent with
16 toxicity?

17 A. Oh, I can't opine on that.

18 Q. Okay. Okay. Let's take a look at
19 the Parker study, and if I am correct, this is the
20 study you reference in the third bullet point on
21 page 13 of Mrs. Tukes' report, Exhibit 1.

22 I have a copy here for you.

23 A. Yes. Okay.

24 (Document marked for

1 identification as Exhibit 15.)

2 MR. MANDELL: Thank you. What
3 is the number?

4 MR. WHITE: Good question.

5 THE WITNESS: 15.

6 MR. WHITE: 15.

7 MR. MANDELL: That has a stamp
8 on it just so I am --

9 THE WITNESS: Yes.

10 MR. MANDELL: Okay.

11 MR. WHITE: We pre-stamped.

12 MR. MANDELL: That's fine.

13 That's fine. I just wanted to make sure.

14 BY MR. WHITE:

15 Q. And you cite the number that you get
16 for exposure here. Exposure to a TCE
17 concentration of 267.4 parts per billion.

18 Do you know where you obtained this
19 number in the Parker study?

20 A. No. I have to look at it.

21 Q. Okay. If you take a look at
22 Table 20 almost at the very end of the document.

23 A. Okay.

24 Q. It says "Contaminants in Well G & H,

1 Woburn, Massachusetts 1979."

2 A. Uh-huh.

3 Q. And it says chloroform,
4 trichloroethylene, tetrachloroethylene, 1,1,1
5 tetrachloroethane, and a couple other chemicals
6 I'm not going to hazard a pronunciation of.

7 Out from trichloroethylene, which is
8 TCE, correct?

9 A. Yes.

10 Q. Okay. It says 267.4.

11 Is this where you obtained the 267.4
12 parts per billion figure referenced in the third
13 bullet point of Mrs. Tukes' report on page 13?

14 A. Yes, it looks like it.

15 Q. Okay. Are you aware of any part in
16 this study that isolates TCE from PCE from any of
17 the other chemicals listed there on that table,
18 such that the toxicity of one could be measured or
19 analyzed versus any of the others?

20 A. You have to give me a minute.

21 Q. Okay.

22 A. (Reviews document.)

23 No. I think they looked at the kind
24 of per well and put the contaminants per well.

1 MR. WHITE: Okay. I'm
2 receiving a message that we might be
3 muted again on the Zoom. I'm sorry.

4 THE VIDEOGRAPHER: Sorry.

5 MR. MANDELL: That's okay.
6 That's okay.

7 MR. WHITE: It's all good.
8 It's better than the opposite.

9 MR. MANDELL: Technology these
10 days.

11 BY MR. WHITE:

12 Q. Okay. Did the Parker study, the one
13 you have in your hand right now, did that show a
14 causal association between TCE concentrations and
15 kidney cancer?

16 A. Let me pull up the part about the
17 renal cancer I was just looking at before.

18 Q. Sure.

19 A. There was a suggestion that the
20 incidence was higher in males.

21 Q. Okay. Do you know if the authors
22 considered that suggestion substantial enough to
23 conclude that there is an association between TCE
24 exposure and kidney cancer?

1 MR. MANDELL: Objection.

2 THE WITNESS:

3 (Reviews document.)

4 I mean, they didn't explicitly
5 talk about it, but they said that there
6 was incidence of renal cancer elevated.

7 BY MR. WHITE:

8 Q. Okay. If you could turn to page 32.
9 This is the internal paginated --

10 A. Yeah, that's where I'm looking at.

11 Q. Okay. First sentence says:

12 "Information gathered thus far fails
13 to establish any association between environmental
14 hazards and increased incidence of childhood
15 leukemia and renal cancer in Woburn. The
16 hypothesis suggesting that the increase in
17 leukemia incidence was associated with
18 environmental hazards in Woburn and specifically
19 to the contamination of drinking water supplies is
20 neither supported nor refuted by the study
21 findings. Interviews with parents of leukemia
22 cases, two groups of matched controls, and family
23 members of renal cancer cases revealed no
24 associations between any environmental factors and

1 disease."

2 Am I correct that the authors of
3 this study could not find no association between
4 the exposures there in Woburn, Massachusetts and
5 kidney cancer?

6 MR. MANDELL: Objection, but
7 you can answer.

8 THE WITNESS: I think what
9 they -- I think they intended to in
10 their -- in their recommendation to cause
11 or to look further at these associations.

12 BY MR. WHITE:

13 Q. Uh-huh. So do you interpret this as
14 recommending further research on the matter?

15 A. Yes.

16 Q. Okay. But subject to that
17 recommendation for further research, this study,
18 the four corners of this study does not show an
19 association between environmental contaminants
20 referenced there in Woburn and renal cancer?

21 MR. MANDELL: Objection.

22 THE WITNESS: Yes, they said
23 information gathered thus far, thus far.
24 So with the limited amount of information

1 they had, they couldn't establish that.

2 BY MR. WHITE:

3 Q. Okay.

4 A. So that's why they recommend to get
5 more information going forward.

6 Q. Okay. Let's take a look at --

7 A. Are we done with this one?

8 Q. Yeah, we can put Mrs. Tukes' report
9 to the side for the moment and let's pull up
10 Mr. Mousser's, and if I could direct your
11 attention to page 8.

12 A. I'm sorry. Which page?

13 Q. Page 8. I'm sorry.

14 A. Mousser.

15 Q. I mumbled.

16 A. Okay.

17 Q. You state that:

18 "Populations exposed to Camp Lejeune
19 levels of TCE exhibited statistically significant
20 increases in bladder and kidney cancers, both of
21 which share a urothelial origin with UTUC."

22 A. I'm sorry. Where are you reading
23 this from?

24 Q. I'm very sorry.

1 You see the heading that says "Camp
2 Lejeune Studies"?

3 A. Yes. Okay.

4 Q. And it's the last sentence of that
5 paragraph.

6 A. Yes.

7 Q. You say that there are levels of --
8 that:

9 "Populations exposed to Camp Lejeune
10 levels of TCE exhibited statistically significant
11 increases in bladder and kidney cancers, both of
12 which share a urothelial origin with UTUC."

13 And you provide a couple footnotes,
14 and I want to turn to a couple of them.

15 Footnote 11 is Dr. Bove's -- or
16 Bove's -- study, 2024 Cancer Incidence Study; is
17 that correct?

18 A. Yes.

19 Q. Okay.

20 (Document marked for
21 identification as Exhibit 16.)

22 BY MR. WHITE:

23 Q. This has been marked as Exhibit 16.
24 Do you know if this study that you

1 have in front of you, the 2024 incidence study by
2 Dr. Bove, did it control for obesity?

3 A. I can look and see.

4 Q. Sure.

5 A. (Reviews document.)

6 Q. And, Doctor, I'm also going to ask
7 you if they controlled about -- if they controlled
8 for high blood pressure, family history, diabetes,
9 and other potential exposures. So while you're
10 looking for any controls of obesity just for
11 time's sake.

12 A. Yep.

13 Q. Thank you.

14 A. (Reviews document.)

15 All right. So weakness of this
16 study was lack of information, smoking, alcoholic
17 consumption, unmeasured risk factors.

18 Q. What page is that on, Doctor?

19 A. I'm looking at the 132. No, that's
20 not the page number. Is this the page?

21 MR. MANDELL: The page number
22 is at the bottom.

23 THE WITNESS: Okay. 11.

24 MR. MANDELL: You see that's

1 -1 -2?

2 THE WITNESS: 11.

3 BY MR. WHITE:

4 Q. Okay.

5 A. Smoking was encouraged.

6 Confounding. Not latency period.

7 (Reviews document.)

8 And then looking at the methodology
9 on page 3, yes, I don't see that they include
10 obesity and some of the other ones that you've
11 mentioned.

12 Q. Okay. So to clear it up on the
13 record, you do not see where the study controlled
14 for obesity?

15 A. Correct.

16 Q. Or high blood pressure?

17 A. Correct.

18 Q. Or family history?

19 A. Yes.

20 Q. Or diabetes?

21 A. Yes.

22 Q. Or smoking?

23 A. They mention it. They didn't
24 control it, no.

1 Q. Okay. And they didn't control for
2 other potential toxic exposures, correct?

3 A. I mean, what do you mean?

4 Q. Beyond Camp Lejeune?

5 A. Yes, uh-huh.

6 Q. They did not control for non-Camp
7 Lejeune?

8 A. They did not.

9 Q. Okay. All right. You stated in
10 Mr. Mousser's report that there are statistically
11 significant increases in bladder and kidney
12 cancers and you cite this study.

13 Can you show me where in this study
14 there are statistically significant increases for
15 bladder and/or kidney cancers?

16 And there's a table with very small
17 words and numbers, and if you need a straight
18 edge, I brought one if that would be helpful to
19 you.

20 A. (Reviews document.)

21 So we're looking at the bladder and
22 kidney, right?

23 Q. Uh-huh.

24 A. Okay.

1 Q. I should say yes. I violated my own
2 deposition.

3 A. (Reviews document.)

4 Yes, I don't -- I don't think these
5 showed. These had the statistically intervals
6 that were -- that were above 1.

7 Q. Okay.

8 A. So they showed some. They showed
9 elevated risk, but some of these were below 1, the
10 confidence interval. So I think that would be
11 like weaker -- weaker correlation.

12 Q. Okay. Another one of the studies
13 that you cite is Dr. Bove's 2014 military
14 mortality study --

15 A. Okay.

16 Q. -- which I believe is Footnote 13.
17 And this will be Exhibit 17.

18 (Document marked for
19 identification as Exhibit 17.)

20 BY MR. WHITE:

21 Q. Here you go.

22 A. Okay.

23 Q. Did this study control for -- and
24 I'll give you these -- these factors together in

1 case you want to review the study for this at
2 once.

3 A. Uh-huh.

4 Q. Did this study control for obesity,
5 hypertension, family history, diabetes, or other
6 exposures to the same chemicals?

7 A. I will let you know in a minute.

8 Q. Sure.

9 A. (Reviews document.)
10 Yeah, I don't see that they
11 controlled for that one.

12 Q. Okay.

13 A. Can I ask just a question?
14 How many -- how many military --
15 active military people with diabetes,
16 hypertension, obesity are there? Probably not a
17 large amount.

18 Q. Don't have that on the top of my
19 head.

20 A. Yeah, I'm wondering if that's why
21 they were not really interested in these
22 questions.

23 Q. If you could turn to -- well, in
24 your report, you state that there are

1 significant -- statistically significant increases
2 in bladder and kidney cancers.

3 Could you let me know, can you find
4 those statistically significant increases in
5 bladder or kidney cancer in the study for me?

6 A. Yes.

7 (Reviews document.)

8 I think probably the best table is
9 the Table 7.

10 Q. Okay.

11 A. Looking at the kidney cancer with
12 the elevated hazard ratio and, again, if
13 technically we're looking at the confidence
14 interval, it goes below 1.

15 Q. Okay.

16 A. But overall the number is 1.59.

17 Q. Okay. If you look across there --
18 and I'm on table --

19 Do you see anywhere else in the
20 study that has statistically significant
21 elevations for kidney or bladder cancers?

22 A. I think there was something on
23 Table 5 maybe. Just a second.

24 (Reviews document.)

1 Yes, Table 5. Kidney cancer had
2 1.35.

3 Q. Is that statistically significant,
4 looking at the confidence intervals?

5 A. So the lower limit of confidence
6 interval goes below 1.

7 Q. Okay.

8 A. But, again, if we discount
9 everything that's written in the literature that
10 confidence interval dips below 1, then we would
11 have no scientific studies. So I think, you know,
12 just kind of focusing on this number alone doesn't
13 do the justice.

14 Q. Okay. Let's turn back to Table 7.

15 A. Uh-huh.

16 Q. And looking at the PCE figure for
17 kidney cancer, which is the first -- basically the
18 first row of Table 7.

19 A. Yes.

20 Q. For low exposure, it has a hazard
21 ratio of 1.4; for medium exposure, it has a hazard
22 ratio of 1.82; and for high exposure, it has a
23 hazard ratio of 1.59.

24 Is that a positive monotonic

1 dose-response curve?

2 MR. MANDELL: Objection.

3 THE WITNESS: I don't think
4 if I can tell it's monotonic curve.

5 BY MR. WHITE:

6 Q. Okay.

7 A. It's a positive association that
8 shows increased risk, yes.

9 Q. Okay. Are you qualified to offer --
10 to assess the dose-response curve indicated in
11 any -- by any of the data in Table 7?

12 MR. MANDELL: Objection.

13 THE WITNESS: I don't think
14 we're looking at the dose curve. I think
15 we're looking at the exposure groups.

16 BY MR. WHITE:

17 Q. Okay.

18 A. It's not a continuous dose curve, if
19 I understand correctly.

20 Q. Okay. If we use exposure, does
21 this -- does this show a monotonic increase in
22 hazard ratio when the exposure levels increase?

23 A. I don't think I can say if it's
24 monotonic or not, frankly.

1 Q. Okay.

2 Is that -- are you qualified -- are
3 you qualified to make that determination one way
4 or the other?

5 A. Well, I haven't seen the curve,
6 number one. So let's start with that.

7 Q. Uh-huh. Are you qualified to, based
8 on these -- these data here, these three
9 numbers -- the 1.4, 1.82 and 1.59 -- just based on
10 those three numbers, are you qualified to say
11 whether or not that that is monotonic?

12 A. I'm qualified to interpret these
13 numbers.

14 Q. Okay.

15 A. I don't know -- I don't know what to
16 make of this monotonic business. Sorry.

17 Q. That's okay.

18 And another one of -- looking back
19 to page 8 of the Mousser report.

20 In that same spot where you say --
21 where you cite statistically significant increases
22 in bladder and kidney cancers, another one of the
23 studies that you cite is Dr. Bove's other 2014
24 report, the civilian mortality report.

1 We could pull that up, and this will
2 be Exhibit 18.

3 (Document marked for
4 identification as Exhibit 18.)

5 BY MR. WHITE:

6 Q. Similar to my last questions, can
7 you tell me if this study controlled for any of
8 the following factors: smoking, obesity, high
9 blood pressure, family history, diabetes, or other
10 potential toxic exposures?

11 A. (Reviews document.)

12 I don't believe so, no.

13 Q. Okay. And, again, you stated that
14 there are statistically significant increases in
15 bladder and kidney cancers, and you cited to this
16 study.

17 Using the 95 percent confidence
18 interval, can you identify any statistically
19 significant increases for bladder or kidney
20 cancers in this study?

21 A. I mean, I'm not sure why we're using
22 the -- what was the -- what was the confidence
23 interval that you?

24 Q. The 95 percent confidence interval.

1 A. Okay. Just a second.

2 (Reviews document.)

3 Yeah, multiple pages, multiple
4 peoples have elevated hazard ratios with, you
5 know, a wider confidence interval than 1.

6 Q. Do any of those confidence intervals
7 that you just mentioned include numbers below 1?

8 A. They do.

9 Q. Okay. Do any of the increased
10 mortality ratios for any kidney cancer or bladder
11 cancer in this study, are there any increased
12 hazard ratios where the confidence interval is
13 entirely above 1?

14 A. No.

15 Q. Okay. Let's take a look at -- all
16 right.

17 You can go back to Mrs. Tukes'
18 report, which is Exhibit 1, and I want to talk
19 about some of the discussions you have on page 8,
20 beginning on page 8.

21 You state that you "have reviewed
22 the general causation expert reports of
23 Drs. Hatten and Bird."

24 Did you review any of the other

1 general causation reports offered by the
2 plaintiffs in this case besides Drs. Hatten and
3 Bird?

4 A. I'd have to look in because there
5 were a lot of different reports. So I forget
6 which ones were general causation, which ones were
7 which.

8 Q. Okay. So if I wanted to know
9 whether or not you looked at any of the
10 plaintiffs' general causation reports that you
11 reviewed beyond Drs. Bird and Hatten, I would turn
12 to your Materials Considered Lists?

13 A. Yes.

14 Q. Okay. If you did not have
15 Drs. Hatten and Bird's report -- reports, is it
16 fair to say you would still have the same opinions
17 that these chemicals cause -- can cause kidney
18 cancer?

19 MR. MANDELL: Objection.

20 THE WITNESS: Yes, I think so.

21 BY MR. WHITE:

22 Q. Okay. So would you say that you
23 provide opinions on causal associations between
24 these cancer -- between these chemicals and kidney

1 and UTUC independent of the opinions offered in
2 Dr. Bird's and Dr. Hatten's reports?

3 MR. MANDELL: I'm going to
4 object.

5 THE WITNESS: Again, talking
6 about causation versus kind of
7 correlation.

8 BY MR. WHITE:

9 Q. Uh-huh.

10 A. Probably my assumptions are made
11 easier by these general causation experts as well.

12 Q. Okay.

13 A. But I think I would still have an
14 opinion that yes.

15 Q. Okay. You say that you "researched
16 and read the epidemiology, toxicology, and
17 mechanistic evidence."

18 By "evidence" I take it that you
19 mean the studies cited in your reports and listed
20 in your Materials Considered Lists?

21 A. Yes.

22 Q. Okay. Anything else beyond those
23 studies and the various medical records and other
24 materials listed on your Materials Considered

1 Lists?

2 A. No.

3 Q. Okay. Did you run searches to
4 obtain the studies that you cite in your -- in
5 your reports?

6 A. Yes, some of them.

7 Q. Okay. What databases did you use?

8 A. I actually used PubMed.

9 Q. Okay. Any others?

10 A. Sometimes Scopus or Google Scholar.

11 Q. Okay. Any others?

12 A. No.

13 Q. Okay. Did you save these search
14 strings that you used to apply to these databases?

15 A. I don't know. I don't think so.

16 Q. Okay. If I wanted to recreate the
17 same searches that you did that rendered the
18 studies you cite and list, how would I do that?

19 A. I mean, I would -- if I were to run
20 the search today, I would probably put, you know,
21 disease of interest and the -- and the compound of
22 interest.

23 Q. Okay. Is that the search strings
24 that you used then, or do you not recall the

1 search strings that you used then?

2 A. I don't recall, but most likely.

3 Q. Okay. Did you have any other search
4 parameters that you used like date of publication
5 or field of study or particular journals?

6 A. No.

7 Q. Okay. Did every study rendered in
8 your search end up cited in your reports?

9 A. I believe so, yes.

10 Q. Okay. So you did not -- did
11 you -- any of the studies that rendered in your
12 searches, did you exclude any of your search
13 results?

14 A. Honestly, possibly. Not really
15 sure.

16 Q. Okay. Did any of your search
17 results render any studies failing to show an
18 association between kidney cancer or UTUC and any
19 of the chemicals at issue here?

20 A. Possibly.

21 Q. Okay. If you wanted to find out,
22 what would you do?

23 A. I'd have to run the search again all
24 over.

1 Q. Okay. If you saw studies that
2 rendered in your searches showing or failing to
3 show an association between kidney and/or UTUC --
4 kidney cancer and/or UTUC and the chemicals at
5 issue, is that something that you would have
6 addressed in your report had you seen it?

7 A. I would have cited it or -- I'm
8 sorry. I would have probably not cited or I would
9 have said the evidence was weaker.

10 Q. Okay. Okay. There are some studies
11 listed in your Materials Considered Lists that
12 aren't cited in your report.

13 What was your methodology for
14 determining what to cite and then what to just
15 list in the Materials Considered Lists?

16 MR. MANDELL: I'm sorry. Can
17 you read that back for me? I missed that
18 part of that.

19 (The reporter read the record
20 on page 193 lines 13-15.)

21 MR. MANDELL: Wasn't there
22 something before that? I think that was
23 what I missed. Yeah, I think it was like
24 something --

1 (The reporter read the record
2 on page 193 lines 10-12.)

3 MR. MANDELL: I see. Okay.
4 That's the part I missed. Yep.

5 BY MR. WHITE:

6 Q. I know there's some back-and-forth,
7 but is the question still clear to you or do
8 you --

9 MR. MANDELL: Sorry about
10 that.

11 MR. WHITE: No, that's okay.

12 BY MR. WHITE:

13 Q. Is the question still clear to you
14 or would you like me to repeat it?

15 A. No, no. It's clear.

16 Q. Okay.

17 A. I mean, if there was anything that I
18 was directly quoting from the study, I cited it.

19 Q. Okay. And if you weren't quoting
20 directly from the study, you would not cite it?

21 A. I would not cite it.

22 Q. Okay. Did you -- let's take a look
23 at --

24 Did you ever use the Bradford Hill

1 methodology in your reports?

2 A. Sounds like it's scientific
3 methodology. So I think if I used it, I probably
4 relied on one of the reports that already had it.

5 Q. Okay. So you did not independently
6 use the Bradford Hill methodology?

7 A. I don't believe I ran it separately,
8 no.

9 Q. Okay. Generally speaking, are you
10 aware of the Bradford Hill -- what the Bradford
11 Hill methodology is?

12 A. I'd have to look it up.

13 Q. Okay. That's okay.

14 Let's take a look at -- one of the
15 studies you cite is Karami and Lan's 2012
16 meta-analysis, and I will pull up that exhibit
17 momentarily.

18 This will be Exhibit 19.

19 (Document marked for
20 identification as Exhibit 19.)

21 BY MR. WHITE:

22 Q. This is -- this study looks at
23 occupational exposures, correct?

24 A. Yes.

1 Q. Okay. Do you know how this study
2 quantified its exposures? What units it used?

3 MR. MANDELL: Objection.

4 THE WITNESS: How they
5 quantified? I'm not sure I understand
6 what they mean -- what you mean by
7 quantification.

8 BY MR. WHITE:

9 Q. Sure.
10 When this study discusses exposures
11 of the people that they examined, how do they
12 measure exposures?

13 A. Should be in the materials.
14 (Reviews document.)
15 I'm not sure that they actually put
16 down the measure, but they looked at the studies.

17 Q. Okay.

18 A. All the studies that had the
19 question of interest.

20 Q. Okay. So my understanding of this
21 study is that it's a meta-analysis and looking at
22 other prior studies and taking a bigger picture
23 view of them together; is that correct?

24 A. Yes.

1 Q. Okay. So this study wouldn't have
2 like -- so would this study have a specific
3 calculation of exposure for anybody in the units
4 of, say, micrograms per liter month?

5 A. No. They just take the existing
6 studies.

7 Q. Okay. Okay. Then you also cited
8 the Purdue 2017 study.

9 A. Are we done with this one?

10 Q. Yes, we are.

11 A. Okay. You don't want to ask about
12 the confidence intervals? These are actually
13 good.

14 Q. If you -- I'm going to ask you about
15 Purdue 2017 study. I can show it to you, but I'm
16 going to ask. If we can save time.

17 Do you independently recall whether
18 or not Purdue 2017 studied occupational exposures?

19 A. I don't remember. I have to look.

20 Q. Okay.

21 A. Oh, it is. It is occupational
22 exposure.

23 Q. Okay. Okay. The Ruder 2001 study.
24 Do you recall if that was occupational exposures?

1 And if you can tell by looking at
2 your references, great. If you need to look at
3 the study, I have a copy here.

4 A. I probably have to look at the
5 study. I'm not seeing it.

6 Q. Sure. Sure. This will be --

7 A. Ruder. Yes, Ruder. I found it.
8 Dry-cleaning workers.

9 Q. Okay.

10 A. Yes, occupational.

11 Q. Okay. Okay. I'm going -- I've
12 heard this name pronounced a dozen different ways
13 and I may pronounce it 13th different way today,
14 but the Saeed Salahi 2024 study that looked at
15 vinyl chloride and benzene.

16 Do you recall whether or not that
17 study was of occupational exposures?

18 A. It is.

19 Q. Okay. The Hu 2002 study that also
20 looked at benzene and vinyl chloride.

21 Do you recall whether that looked at
22 occupational exposures?

23 A. Yes.

24 Q. Okay.

1 A. Can I just make a quick note?

2 I mean, the reason there's so many
3 occupational studies, it's because it's easier to
4 do the quantification in these -- in these, like,
5 cohorts.

6 Q. Uh-huh. Okay. Did you look at the
7 -- tell you what. Let's go ahead.

8 You cited the Callahan study of
9 2019.

10 Do you recall whether or not this
11 was an occupational study?

12 A. I think I'm going to presume any
13 question you ask the answer is yes.

14 Yes, it is.

15 Q. Well, I did not intend that to be a
16 trick question.

17 A. Dry cleaners.

18 MR. WHITE: I'm going to
19 actually make it an exhibit if we could.
20 All right. And this will be Exhibit 20.

21 (Document marked for
22 identification as Exhibit 20.)

23 BY MR. WHITE:

24 Q. Let's take a look at the mortality

1 figures in Table 2 on the third page of this
2 document.

3 The hazard -- the standardized
4 mortality ratio for kidney cancer is not
5 statistically significant, at least by using the
6 95 percent confidence intervals, including numbers
7 below 1, correct?

8 A. Correct. The numbers of the, you
9 know, study subjects were very low.

10 Q. Okay.

11 A. Yeah.

12 Q. Let's take a look at -- let's take a
13 look at the table on the next page. Table 3.

14 A. Uh-huh.

15 Q. You look at the numbers for kidney
16 cancer, and it has figures for no/low solvent
17 exposure, medium solvent exposure, and high
18 solvent exposure.

19 The no/low solvent exposure, the
20 hazard ratios across there are 1.0, but I presume
21 that that is probably due to the low numbers of
22 study participants.

23 Is that your interpretation of that
24 as well?

1 MR. MANDELL: Objection.

2 THE WITNESS: I'm sorry.

3 What was -- what was the question? I
4 missed that.

5 BY MR. WHITE:

6 Q. Okay. Where it says kidney cancer
7 in the middle of Table 3.

8 A. Yes.

9 Q. And no/low --

10 A. Uh-huh.

11 Q. -- solvent exposures.

12 All across there, it has hazard
13 ratios of exactly 1.0.

14 My interpretation of that is that
15 that's the best they could do given the low number
16 of study participants.

17 Is that your interpretation as well?

18 A. No, no. That's wrong.

19 Q. Okay.

20 A. That's the reference point.

21 Q. The reference point.

22 Okay. So that's what the medium and
23 high exposures are being compared to?

24 A. Yes.

1 Q. Okay. The -- the kidney cancer
2 hazard ratios for no lag are not statistically
3 significant for medium exposure, correct?

4 A. Yes. Strictly speaking, yes.

5 Q. Okay. Nor for the 10-year lag or
6 20-year lag for medium exposure, right?

7 A. Correct.

8 Q. Okay. When we get to high exposure,
9 that's when the results become statistically
10 significant, right?

11 MR. MANDELL: Objection.

12 You can answer.

13 THE WITNESS: Yes.

14 BY MR. WHITE:

15 Q. Okay. And to calculate exposure in
16 this study, one of the factors they used was the
17 years that the participants were in the dry
18 cleaners union; is that correct?

19 MR. MANDELL: Objection.

20 BY MR. WHITE:

21 Q. I'm looking on page 2.

22 A. (Reviews document.)

23 MR. MANDELL: You mean 286?

24 MR. WHITE: Yes. Page 2 of

1 the document.

2 MR. MANDELL: Sure.

3 MR. WHITE: 286 in the paper.

4 THE WITNESS:

5 (Reviews document.)

6 Score? Yes. How they were
7 assigned a score?

8 BY MR. WHITE:

9 Q. Yeah.

10 A. Okay.

11 Q. And one of the factors they used was
12 job title, correct?

13 A. Time-weighted average, yes, that's
14 the job titles. Uh-huh.

15 Q. Okay. And then let's take a look
16 at, on this page where it talks about exposures,
17 and I'm looking about halfway down the first
18 column on the right or -- I'm sorry -- on the
19 left, and it says:

20 "Mean trichloroethylene exposure
21 levels reported in the published monitoring
22 studies ranged from 25 to 280 parts per million."

23 Do you have a way of examining that
24 figure and comparing it in the same units to

1 micrograms per liter month?

2 MR. MANDELL: Objection.

3 THE WITNESS: I would -- I
4 would -- I would use parts per billion to
5 extrapolate.

6 BY MR. WHITE:

7 Q. Okay. Including if you were going
8 to extrapolate to micrograms per liter month?

9 A. Yes. It's the same as ppb.

10 Q. Okay. Do you know the monitoring --
11 how the monitoring studies calculated
12 this -- calculated this 25 to 280 parts per
13 million figure?

14 A. No, I don't recall.

15 Q. Okay. Are you aware of time --
16 8-hour time-weighted averages for exposure
17 modeling like this?

18 A. This is what they used, yes.

19 Q. Okay. Okay. So if using an 8-hour
20 time-weighted average one of the study
21 participants was exposed to between 25 parts per
22 million to 280 parts per million, or, to put it
23 into parts per billion, using an 8-hour
24 time-weighted average, they would be exposed to

1 25,000 parts per billion or 280,000 parts per
2 billion for an 8-hour workday, correct?

3 A. I -- I don't recall if this is per
4 workday, the -- the published number that they're
5 quoting.

6 Q. If they are using an 8-hour
7 time-weighted average, would that be equivalent to
8 an 8-hour workday?

9 A. Context limit.

10 Yes, sounds like it.

11 Q. Okay. Are you aware of any Camp
12 Lejeune plaintiff who had between 25,000 parts per
13 billion to 280,000 parts per billion of exposure
14 in one day?

15 MR. MANDELL: Objection.

16 THE WITNESS: I mean, this is
17 like comparing apples to oranges.

18 BY MR. WHITE:

19 Q. Okay.

20 A. You're comparing a workday to a
21 living situation, and workday is like 8-hour
22 exposure and living is 24-hour exposure.

23 Q. Okay.

24 A. So you can't really compare these

1 numbers.

2 Q. Okay. In your reports, you describe
3 vinyl chloride and benzene risks as synergistic.
4 And I can find you a number, page number for that
5 real quickly.

6 Yeah, in the middle of page 11.

7 MR. MANDELL: Of which report?

8 MR. WHITE: I'm sorry. We're
9 back on Tukes.

10 THE WITNESS: Tukes. Which
11 page? I'm sorry. 11?

12 BY MR. WHITE:

13 Q. Page 11 in the middle.

14 A. Okay.

15 Q. Let me know when you're there.

16 You state that:

17 "Both compounds are linked to
18 genotoxic effects but are less robustly associated
19 with RCC than TCE. Synergistic effects with other
20 carcinogens (e.g., PCE) amplify this risk."

21 What studies do you rely on to make
22 the determination that vinyl chloride or benzene
23 are synergistic with PCE?

24 A. I mean, it's mainly their mechanisms

1 of action because all of these compounds cause DNA
2 damage.

3 Q. Uh-huh.

4 A. So it's logically they all cause DNA
5 damage. So when you have multiple, then it's, you
6 know, likely to be synergistic.

7 Q. Okay. Is it -- how do you determine
8 if the cumulative effect is additive versus
9 synergistic, or is that a determination that
10 you're qualified to make?

11 A. I mean, you'd have to run a study,
12 causative study probably on animals, to get that
13 answer.

14 Q. Okay. Are you aware of any studies
15 where that have tested whether or not these
16 chemicals have synergistic versus additive
17 effects?

18 A. I don't recall any of them.

19 Q. Okay. You state that -- and I'm
20 looking at the last sentence of the paragraph
21 under "Epidemiological Evidence" on page 11.

22 "There are other studies as well
23 showing this causal relationship, including the
24 Camp Lejeune studies."

1 And you cite footnotes 13 and 14.

2 MR. MANDELL: Where are you?

3 MR. WHITE: Middle of page 11
4 of the Tukes report.

5 MR. MANDELL: Got it.

6 BY MR. WHITE:

7 Q. And you cite for that proposition
8 the two Dr. Bove studies from 2014.

9 A. Uh-huh.

10 Q. You state that there are other
11 studies as well, including the Camp Lejeune
12 studies.

13 Are you relying upon any other
14 studies for this sentence beyond just the two Bove
15 studies you cite in footnotes 13 and 14?

16 A. I mean, possibly these were the
17 studies that were not cited but are included in
18 the materials --

19 Q. Okay.

20 A. -- reviewed.

21 Q. Okay.

22 A. When would be a good time to take a
23 break? I'm getting brain fatigue a little bit.

24 Q. You and me both. We can take -- we

1 can take a break right now.

2 A. Okay. Too much math statistics.

3 THE VIDEOGRAPHER: The time is
4 2:15 PM. We are now off the record.

5 (A recess was taken.)

6 THE VIDEOGRAPHER: The time is
7 2:24 PM. We are now on the record.

8 BY MR. WHITE:

9 Q. All right. Doctor, we're back after
10 a short break.

11 Did you talk to anybody about the
12 substance of your testimony while we were on
13 break?

14 A. No.

15 Q. Okay. I'm winding down here a
16 little bit.

17 If you could, in your report for
18 Mrs. Tukes, you reference -- you reference the UNC
19 Chapel Hill genetic testing, correct?

20 A. Yes.

21 Q. I'm trying to find where that is
22 cited in here.

23 MR. MANDELL: You want some
24 help?

1 MR. WHITE: If you got it.

2 MR. MANDELL: I don't know if
3 this is what you're talking about.

4 THE WITNESS: Page 3.

5 MR. MANDELL: Page 3?

6 MR. WHITE: I don't think so.
7 Where is it?

8 MR. MANDELL: Okay.

9 THE WITNESS: Page 3 on the
10 bottom?

11 MR. WHITE: Yeah. Oh, yeah,
12 there it is. I was looking for UNC
13 Chapel Hill.

14 BY MR. WHITE:

15 Q. All right. The genetic testing that
16 Mrs. Tukes had done, do you know how many genes it
17 tested for?

18 A. I can't recall.

19 Q. Okay. Would it surprise you if it
20 were 30 genes?

21 A. No.

22 Q. Okay. How many -- this is -- how
23 many genes are there total in the human genome?

24 A. Thousands.

1 Q. Okay.

2 A. Maybe more.

3 Q. Okay. I think I saw a figure once
4 20,000.

5 Does that sound about right?

6 MR. MANDELL: Objection.

7 THE WITNESS: Probably.

8 BY MR. WHITE:

9 Q. Okay. Have all genes associated
10 with kidney cancer been definitively identified?

11 MR. MANDELL: Objection.

12 THE WITNESS: I mean, science
13 is always in motion. So.

14 I answered like a politician.

15 BY MR. WHITE:

16 Q. Do you think that the 30 genes
17 tested for in Mrs. Tukes' genetic testing are the
18 exclusive universe of genes related to kidney
19 cancer?

20 MR. MANDELL: Objection.

21 THE WITNESS: I'm not sure.

22 I mean, these are the genes that we know
23 of.

24 BY MR. WHITE:

1 Q. Okay. There may be genes that we
2 don't know of that could be associated with kidney
3 cancer, correct?

4 A. Possibly.

5 Q. Okay. Does the state of genetics
6 today allow the kind of conclusion that these 30
7 genes and only these 30 genes are associated with
8 kidney cancer?

9 MR. MANDELL: Objection.

10 THE WITNESS: I mean, these
11 are the genes that we know.

12 BY MR. WHITE:

13 Q. Okay.

14 A. Beyond that, it's really hard to
15 make any assumptions.

16 Q. Okay. Are these kinds of
17 conclusions about genetics within the realm of
18 your expertise?

19 A. I mean, partially.

20 Q. Okay.

21 A. I'm not a geneticist but...

22 Q. Okay. Are you aware of any studies
23 that compare the risks of hypertension -- the
24 kidney cancer risks associated with hypertension

1 versus the kidney cancer risks of any of the
2 chemicals at issue in this litigation?

3 A. I can't recall a study that compares
4 them head-to-head.

5 Q. Okay. How about a head-to-head
6 comparison between obesity or BMI versus any of
7 the chemicals at issue in this litigation with
8 respect to kidney cancer?

9 A. Again, not head-to-head.

10 MR. MANDELL: Object.

11 BY MR. WHITE:

12 Q. Okay.

13 A. Some may control for it.

14 Q. Okay. Do you know what the SEER
15 data are? S-E-E-R? It's an acronym.

16 A. Yes.

17 Q. Okay. And those are statistical
18 data collected by, I believe, the Centers for
19 Disease Control; is that correct?

20 A. One of the federal agencies, yes.

21 Q. Okay. Okay. If the SEER data
22 indicated that over 22 percent of kidney cancer
23 cases were diagnosed before the age of 54, would
24 you have any reason to disagree with that?

1 A. I mean, just like any large
2 database, there are a lot of omissions that are
3 put in that data, but I have no reason to disagree
4 with the statistics.

5 Q. Okay. If you could, let's go to --
6 Are you aware of any studies that
7 compare the kidney cancer risks associated with
8 smoking versus the kidney cancer risks associated
9 with any of the chemicals at issue in this
10 litigation?

11 MR. MANDELL: Objection.

12 THE WITNESS: Again, I don't
13 think anything has been head-to-head
14 comparison, but I think some -- some of
15 that is accounted in the studies.

16 BY MR. WHITE:

17 Q. Okay. In layman's terms, hematuria
18 is blood in the urine, right?

19 A. Correct.

20 Q. Okay. Can hematuria indicate
21 inflammation in the genitourinary tract?

22 A. Yes.

23 Q. Okay. In fact, would you say it's a
24 common sign of infection in the genitourinary --

1 genitourinary tract?

2 MR. MANDELL: Objection.

3 THE WITNESS: I wouldn't say
4 common, but it's a sign.

5 BY MR. WHITE:

6 Q. Okay. Let's take a look at your
7 rebuttal report. If my colleague can pull that
8 out when he gets a chance. Oh, it's already
9 marked.

10 A. I have it.

11 MR. MANDELL: Yeah.

12 Exhibit 4.

13 MR. WHITE: Exhibit 4. Thank
14 you.

15 MR. MANDELL: Sure.

16 BY MR. WHITE:

17 Q. All right. In this study, if we
18 look to page -- this will be internal paginated
19 page number 1. Let me find it.

20 A. I'm sorry. What study? I thought
21 we were looking at the rebuttal.

22 Q. Yes.

23 MR. MANDELL: Your rebuttal
24 report.

1 MR. WHITE: Yes.

2 THE WITNESS: Oh, okay.

3 MR. WHITE: Yeah.

4 MR. MANDELL: You said the
5 word "study."

6 MR. WHITE: Oh, did I? Force
7 of habit. That's okay. That's my fault.

8 BY MR. WHITE:

9 Q. Looking at the rebuttal report, you
10 state on internal paginated page 1 that -- you
11 state that:

12 "Studies have demonstrated that
13 environmental carcinogens, including TCE, can
14 induce multiple synchronous or metachronous renal
15 tumors without a genetic syndrome."

16 And I would like to know what --
17 what studies are you referring to to support that
18 proposition?

19 A. What paragraph is this? I'm sorry.

20 Q. That is the second paragraph up from
21 the bottom, the last sentence.

22 A. Okay.

23 (Reviews document.)

24 I mean, I'm trying to think. I'm

1 trying to recall. I'm sorry.

2 I don't think I can quote the study
3 for this.

4 Q. Okay. If you had a study to support
5 that proposition, would it be listed in your
6 Materials Considered Lists?

7 MR. MANDELL: Objection.

8 THE WITNESS: Yes, most
9 likely.

10 BY MR. WHITE:

11 Q. Okay. You state in here that:
12 "According to standard medical
13 definitions, idiopathic conditions are those with
14 no recognized or understood cause."

15 What is the standard --

16 MR. MANDELL: Where are you
17 reading from?

18 MR. WHITE: I'm sorry. I did
19 it again.

20 MR. MANDELL: That's okay.

21 MR. WHITE: About the middle
22 of the page, second paragraph down,
23 middle of that paragraph.

24 MR. MANDELL: Uh-huh.

1 BY MR. WHITE:

2 Q. "According to standard medical
3 definitions, idiopathic conditions are those with
4 no recognized or understood cause."

5 What definitions are you
6 referring -- are you referring to a specific
7 definition for that sentence?

8 A. I mean, this is kind of accepted
9 kind of understanding. So I'm not really sure if
10 there is such a written definition, but maybe
11 there is.

12 Q. Okay. So you weren't relying on
13 like a medical dictionary or medical textbook or
14 something for that particular definition?

15 A. Probably not, but I'm sure if we put
16 this in a search engine, that will show up.

17 Q. Okay. No recognized or understood
18 cause is not the same thing as no cause at all,
19 correct?

20 MR. MANDELL: Objection.

21 THE WITNESS: Yes.

22 BY MR. WHITE:

23 Q. Okay. It could very well be a cause
24 that we haven't recognized or understood?

1 A. Correct.

2 Q. Or a cause we haven't identified?

3 A. Correct.

4 Q. Okay. An idiopathic cancer is -- is
5 caused by something that we may not be able to
6 state precisely what it was; is that correct?

7 MR. MANDELL: Objection.

8 THE WITNESS: Correct.

9 BY MR. WHITE:

10 Q. Okay. We don't know the full extent
11 of what causes kidney cancer, correct?

12 MR. MANDELL: Objection.

13 THE WITNESS: I mean, we know
14 it's mutations.

15 BY MR. WHITE:

16 Q. Okay. Genetic mutations can be
17 caused by an exogenous factor like a carcinogen
18 exposure, correct?

19 A. Yes.

20 Q. And they can also occur randomly or
21 sporadically, correct?

22 A. Yes.

23 Q. And that's -- that refers to errors
24 in the trillions of times that our cells multiply

1 throughout our lives, correct?

2 A. Very correct. Yes.

3 Q. Okay. And is that how people
4 without risk factors develop cancer?

5 MR. MANDELL: Objection.

6 THE WITNESS: It's either
7 mutations that are going unrepaired --

8 BY MR. WHITE:

9 Q. Okay.

10 A. -- or the presence of mutations.

11 Q. Okay. But that is one of this sort
12 of random or sporadic genetic mutation can be a
13 cause of cancer for someone who doesn't have any
14 other identified risk factors, correct?

15 A. Correct.

16 Q. Okay.

17 A. That being said, you know, we have
18 two strands of DNA. So both of these have to have
19 the mutation to progress to -- to a disease.

20 Q. Okay.

21 A. And sometimes, you know, the
22 genetics produce, like, have one faulty strand and
23 then the other one has to get mutated to move on.

24 Q. Okay. The fact that someone has a

1 risk factor for cancer doesn't exclude the sort of
2 random or sporadic mutations as a potential cause
3 for their cancer, correct?

4 MR. MANDELL: Objection.

5 THE WITNESS: I mean, when we
6 look at the kind of diagnosis to go down
7 to sporadic, I mean, we check off
8 everything else, and if there is a
9 checkmark, it's no longer sporadic. If
10 that makes sense.

11 BY MR. WHITE:

12 Q. Okay.

13 A. So if there's a risk factor already,
14 that means it's not sporadic -- it's not
15 idiopathic.

16 Q. Okay. So it's more or less
17 operation of process of elimination?

18 A. Exactly.

19 Q. Okay.

20 THE COURT REPORTER: Can we go
21 off the record.

22 THE VIDEOGRAPHER: Time is
23 2:38 PM. We are now off the record.

24 (A recess was taken.)

1 THE VIDEOGRAPHER: The time is
2 2:45 PM. We're now on the record.

3 BY MR. WHITE:

4 Q. All right, Doctor. We're back on
5 the record after a short break.

6 Did you talk to anybody about the
7 substance of your testimony during the break?

8 A. No.

9 Q. Okay. Have you ever treated a
10 patient with hereditary renal -- with hereditary
11 RCC?

12 A. Yes.

13 Q. Okay. How many times?

14 A. A lot.

15 Q. Okay. When was the last time you
16 treated a patient with hereditary RCC?

17 A. Three months ago.

18 Q. Okay. How do you determine whether
19 or not a patient has hereditary RCC?

20 MR. MANDELL: Objection, but
21 you can answer.

22 THE WITNESS: I mean, having
23 a high index of suspicion, referring them
24 to a geneticist.

1 BY MR. WHITE:

2 Q. Okay. What kinds of things result
3 in a high index of suspicion?

4 A. I mean, anybody under age of 46
5 usually is -- I mean, we have guidelines that
6 direct us to send patients to genetic testing. So
7 age less than 45, you know, multiple family
8 members with cancer. Some of these, you know,
9 additional things that I noticed -- I noted to
10 you, like skin bumps, etc.

11 Q. Would bilateral tumors be one of
12 those factors that increases the suspicion?

13 A. Yes.

14 Q. And is it, in fact, part of the
15 guidelines that you referred to?

16 A. Probably, yes.

17 Q. Okay. And just for the record, are
18 those the NCCN guidelines?

19 A. Yes.

20 Q. Okay. Are multifocal tumors one of
21 the things that increase the index of suspicion?

22 A. Yes.

23 Q. Okay. Are multifocal tumors one of
24 the factors on the NCCN guidelines?

1 A. Actually, I'd have to look at it to
2 tell you. Probably.

3 Q. Okay. Okay. Have you ever treated
4 a patient as if they had hereditary RCC based on
5 the patient's clinical phenotype alone?

6 MR. MANDELL: Objection, but
7 you can answer.

8 THE WITNESS: I don't think I
9 would call it genetic RCC unless there
10 was genetic kind of a -- something
11 showing that genes were mutated.

12 BY MR. WHITE:

13 Q. Okay. Particular genes?

14 A. Yes, the particular known genes.

15 Q. Okay. If a patient had genetic
16 testing that indicated -- that did not indicate
17 any known gene mutations associated with kidney
18 cancer, but they otherwise fit the guidelines of
19 hereditary RCC, would you still treat them as if
20 they had hereditary RCC?

21 MR. MANDELL: Objection.

22 THE WITNESS: Probably --
23 probably not, you know, depending on my
24 index of suspicion.

1 BY MR. WHITE:

2 Q. Uh-huh.

3 A. I mean, I see plenty of people who
4 have multiple tumors and don't have genetic
5 syndromes, and I don't treat them as genetic
6 syndromes.

7 Q. Okay. If you had a patient with
8 hereditary RCC and a patient who had a
9 nonhereditary RCC, how would you treat them
10 differently, if at all?

11 A. I think, you know, one -- are we
12 talking about kidney cancer, right?

13 Q. Yes.

14 A. Okay. So I'll give you an example.
15 So if I had a patient with a large
16 renal tumor who has hereditary predisposition, I
17 would be more likely to try to conserve that
18 kidney, knowing that they may develop further
19 tumors in the future.

20 Q. Okay.

21 A. I would monitor them lifelong. You
22 know, a lot of these genetic syndromes have other
23 systems involved. So let's say for the NHL gene,
24 they would have to have brain imaging, you know,

1 things like that.

2 Q. Okay. So you would have -- one of
3 the things you would do would be to increase their
4 monitoring for newly-developed cancers, correct?

5 A. Extended --

6 Q. Yeah.

7 A. -- or kind of expand, yes.

8 Q. Okay. Would you do that for --
9 would you have similar expanded monitoring if a
10 patient had multiple metachronous -- metachronous
11 tumors that were bilateral and multifocal? Would
12 you recommend for that patient the expanded
13 monitoring that you described?

14 MR. MANDELL: Objection.

15 THE WITNESS: I may monitor
16 them longer, but that would be the only
17 thing.

18 BY MR. WHITE:

19 Q. Okay. So you would monitor them
20 longer based upon that clinical presentation?

21 A. Yes.

22 MR. MANDELL: Objection.

23 THE WITNESS: Not because I
24 would think they have genetic

1 predisposition, but because they had more
2 than one tumor. So I would just follow
3 them.

4 MR. WHITE: Okay. If we
5 could -- we are winding down here. If
6 you could get me, Josh, the errata sheet,
7 let me know which number that was.

8 MR. CARPENITO: 5.

9 BY MR. WHITE:

10 Q. Let's take a look at Exhibit 5.

11 A. Uh-huh.

12 Q. Am I correct that this errata sheet
13 corrects some units that were used in your initial
14 reports in this case?

15 A. Yes.

16 Q. Okay. When did you determine the
17 need to adjust these units?

18 MR. MANDELL: Objection.

19 THE WITNESS: I was looking
20 over the reports and came to my attention
21 that these were misspelled.

22 BY MR. WHITE:

23 Q. Okay.

24 A. Or miswritten.

1 Q. Okay. Did anyone bring this to
2 your -- this -- this unit issue to your attention,
3 or did you independently find it yourself?

4 MR. MANDELL: And I'm going to
5 object and just instruct you not to
6 answer as to communications between
7 counsel.

8 THE WITNESS: I'm not going
9 to answer.

10 BY MR. WHITE:

11 Q. Okay. Is it fair to say that -- did
12 you come to this conclusion that these units
13 needed to be corrected independently?

14 MR. MANDELL: And I'm going to
15 have the same instruction, but you can
16 answer.

17 THE WITNESS: Yes.

18 MR. WHITE: Okay. Let me take
19 a very quick break with my colleagues,
20 make sure I didn't miss anything, but we
21 are reaching the end here.

22 MR. MANDELL: Great.

23 THE WITNESS: Okay.

24 MR. MANDELL: Are we off the

1 record?

2 MR. WHITE: Yes, please.

3 THE VIDEOGRAPHER: Time is
4 2:53 PM. We're now off the record.

5 (A recess was taken.)

6 THE VIDEOGRAPHER: The time is
7 3:00 PM. We are now on the record.

8 BY MR. WHITE:

9 Q. Doctor, we're back after a short
10 break and I have what is, hopefully, one last
11 question for you.

12 Did you talk to anybody about the
13 substance of your testimony during the break?

14 A. No.

15 MR. WHITE: All right. With
16 that, I pass the witness who may have
17 some questions for you.

18 MR. MANDELL: Thank you.
19 Yeah, just a couple.

20 EXAMINATION

21 BY MR. MANDELL:

22 Q. Dr. Smith, you were asked a whole
23 bunch of questions today. I just want to ask you
24 a couple of clarifying questions.

1 The first one is: You were asked
2 some questions at the very beginning about whether
3 or not the ATSDR water modeling was based off of
4 averages or was taken by a particular day or
5 something like that.

6 A. Uh-huh.

7 Q. Do you remember that question
8 generally?

9 A. Yes, I think so.

10 Q. And I know -- I'm sorry.

11 You've looked at a whole bunch of
12 documents, but the easiest way I can think to do
13 it, just because it's already marked, is if you
14 look at Exhibit 17, the second page or page 3 --
15 I'm sorry -- on the bottom left-hand corner.

16 The last sentence on there says:

17 "Estimated monthly mean
18 concentrations of PCE."

19 Do you see that?

20 A. Yes.

21 Q. So, and you've obviously -- strike
22 that.

23 You have read this study before,
24 right?

1 A. Yes.

2 Q. And so is it fair to say that it was
3 monthly mean concentrations that you understood?

4 A. Yes, based on this study.

5 Q. Yeah.

6 You were asked some questions about
7 units of measurement several different times
8 during the day and, for example, I think you were
9 asked about part per billion; right?

10 A. Yes.

11 Q. And you had said that you believed
12 that that was equivalent for the purposes of the
13 discussion today -- I think the question was with
14 regard to some type of liquid -- that that's the
15 same as microgram per liter, right?

16 A. Yes.

17 Q. And you were asked some questions
18 about microgram per liter months, true?

19 A. Yes.

20 Q. And I believe you had said that that
21 months part adds the cumulative nature of the
22 microgram per liter; is that right?

23 A. Yes.

24 MR. WHITE: Objection. Form.

1 BY MR. MANDELL:

2 Q. So you were asked some questions
3 about a couple different studies, but I think the
4 first one was Aschengrau, and it was you were
5 shown your report in Tukes and asked about.

6 And the report in Tukes is
7 Exhibit 1, and I put these in order so we're good.

8 A. Yes.

9 Q. And you were asked some questions
10 about on page 6 there was a number 82.85 and the
11 fact that that was microgram per liter months, and
12 you were asked about Aschengrau and the 27 to 44
13 milligrams.

14 Do you remember those questions?

15 A. I think so, yes.

16 Q. Generally speaking?

17 A. Uh-huh.

18 Q. And I think I want to just make sure
19 it's clear.

20 You were asked some questions about
21 the fact that in the Aschengrau number, it didn't
22 account for duration or the amount consumed or
23 something to that effect.

24 Do you remember those questions?

1 MR. WHITE: Objection. Form.

2 THE WITNESS: Yes.

3 BY MR. MANDELL:

4 Q. Okay. And when you -- when you were
5 asking -- when you were asked about those
6 questions, you weren't saying that you could go
7 directly from microgram per liter months to a unit
8 of milligrams directly, true?

9 MR. WHITE: Objection. Form.

10 THE WITNESS: Correct. You go
11 from milligrams to micrograms directly.

12 BY MR. MANDELL:

13 Q. Right.

14 Meaning you were saying -- there was
15 some questions about, well, you just have to
16 multiply by a thousand.

17 You were talking about going from a
18 unit of milligrams to a unit of micrograms, right?

19 A. Correct.

20 Q. Okay. And I think a similar thing
21 came up a little later on when you were asked
22 about Callahan and that was in part per million.

23 And you were asked some questions
24 about, well, your charts in -- the charts from

1 Dr. Reynolds in microgram per liter months and
2 converting that to part per million.

3 And you were saying, "Well, I would
4 use part per billion to convert to part per
5 million," fair?

6 A. Yes.

7 MR. WHITE: Objection.

8 BY MR. MANDELL:

9 Q. And same general concept.

10 Is it fair to say that when -- that
11 you would -- strike that.

12 You wouldn't compare directly from
13 microgram per liter months to part per million,
14 true?

15 MR. WHITE: Objection.

16 THE WITNESS: Correct.

17 BY MR. MANDELL:

18 Q. Okay. In your Exhibit 1 -- again, I
19 think that this is just a clarification, but you
20 on page 6, you were asked some questions about
21 this first box up here for January of '86 and it
22 said .8 -- excuse me -- .18.

23 Do you remember that?

24 A. Yes.

1 Q. And I believe you had said at the
2 time that that was in micrograms per liter that
3 that was a concentration.

4 Do you remember that?

5 A. Is that what I said? Yes, probably.

6 Q. Okay. Okay. So, and then you were
7 asked about a number in the chart, the second
8 chart under the Hadnot Point chart, and it was
9 like one of the number 3s.

10 Do you remember that?

11 A. Yes.

12 Q. I think you had said, but I could be
13 wrong. I think you had said that the 3
14 represented a microgram per liter month.

15 But would you agree that that number
16 would be the same concentration, it's the same
17 general concentration as you were talking about
18 above in terms of microgram per liter?

19 A. Yes, it's --

20 MR. WHITE: Objection. Form.

21 THE WITNESS: -- the same --
22 same units, yes.

23 BY MR. MANDELL:

24 Q. Okay. You were asked some questions

1 about maximum contaminant levels like the MCLs
2 that you put in your report.

3 A. Yes.

4 Q. And some questions about different
5 areas of your report where you cited to the MCLs.

6 Is it fair to say you're not relying
7 on the MCLs solely for any opinions in terms of
8 what level would be causative of kidney cancer,
9 fair?

10 MR. WHITE: Objection.

11 THE WITNESS: That's fair,
12 yes.

13 BY MR. MANDELL:

14 Q. Okay. You're -- you're saying
15 it's -- it's -- you looked at it and it has some
16 level involved in it, fair?

17 MR. WHITE: Objection.

18 THE WITNESS: Yes.

19 BY MR. MANDELL:

20 Q. Okay. You were asked some questions
21 about in your report you used the word
22 "substantial" exposure, and you were asked some
23 questions about some particular studies and
24 whether those studies show substantial exposure.

1 Do you remember that?

2 A. Yes.

3 Q. Okay. And in particular, I think
4 you were asked about some of the particular bullet
5 points on page 13.

6 Do you remember that?

7 I'm looking at Exhibit 1, Tukes, the
8 same --

9 A. Yes.

10 Q. -- chart.

11 And you were asked about these
12 ranges of, like, 1 to 3700 -- excuse me -- 1 to
13 3100. It's like the fourth bullet point down.

14 Do you see that?

15 A. Yes.

16 Q. Okay. And I think at one point you
17 were asked something along the lines of, well, for
18 in this study, from 1 to 3100, would you consider
19 2 or 1 microgram per liter month to be
20 "substantial."

21 Do you remember that?

22 MR. WHITE: Objection.

23 THE WITNESS: I remember,
24 yes.

1 BY MR. MANDELL:

2 Q. Okay. And the question that I have
3 is: Is it true that what you were saying was, you
4 were relating that the study had an increased
5 hazard ratio in those exposure ranges?

6 MR. WHITE: Objection. Form.

7 THE WITNESS: That's correct.

8 BY MR. MANDELL:

9 Q. Okay. You weren't saying that --
10 strike that.

11 Is it fair to say that when you are
12 considering "substantial" exposure for an
13 individual plaintiff, you need to look at the
14 actual plaintiff to determine whether there's
15 substantial exposure for that person?

16 MR. WHITE: Objection. Form.

17 THE WITNESS: Yes.

18 BY MR. MANDELL:

19 Q. Okay. The last thing I wanted to
20 ask you about -- and I know you were asked about
21 this before, but I want to just make sure that I'm
22 clear.

23 When you were asked about the
24 Aschengrau study, which was Exhibit 14.

1 A. Okay.

2 Q. And they're in order. So you should
3 be able to get at it pretty quickly.

4 If you could turn to the internal
5 page number 290. Again, it's Exhibit 14.

6 MR. WHITE: Yeah.

7 BY MR. MANDELL:

8 Q. Under the Discussion section, I just
9 want to make sure it wasn't -- the wording came
10 out correctly, but the last sentence of Exhibit
11 14, the -- strike that.

12 The last sentence of the first
13 paragraph under the Discussion section in
14 Exhibit 14 says:

15 "No kidney cancer cases were
16 considered exposed when latency was taken into
17 account, and no meaningful increases in the risk
18 of kidney cancer were detected without latency."

19 That -- did I read that correctly?

20 A. Yes.

21 Q. Okay. And then on the top right,
22 the first full paragraph on the top right of the
23 next page, the latent -- the average latent
24 periods that were used in the study were 15 years

1 for solid tumors, true?

2 A. Yes.

3 Q. Okay. And is it fair to say that
4 that would be applicable to kidney cancer?

5 MR. WHITE: Objection. Form.

6 THE WITNESS: I'm sorry. I
7 didn't understand.

8 BY MR. MANDELL:

9 Q. Okay.

10 A. What do you mean "applicable"?

11 Q. The solid tumors meaning the
12 latency --

13 A. Oh, yes.

14 Q. -- they had solid tumors versus when
15 they have one for leukemia?

16 A. Yes. Solid tumors is kidney cancer.

17 Q. Okay.

18 A. Yes.

19 MR. MANDELL: Okay. All
20 right. That's all the questions I have.
21 Thank you so much.

22 MR. WHITE: I have just a
23 couple.
24

FURTHER EXAMINATION

BY MR. WHITE:

Q. Is it your testimony, Doctor, that exposure to TCE, PCE, vinyl chloride, or benzene above the EPA's MCL level is substantial exposure sufficient to meet the causal standards you used in these reports?

MR. MANDELL: Objection.

THE WITNESS: I would call it significant. I don't know if I would call it substantial.

BY MR. WHITE:

Q. Okay. If the evidence showed that the exposure levels of Mrs. Tukes, or Mr. Howard or Mr. Mousser, showed that her exposure was above the MCL for any of these applicable chemicals and you did not have the benefit of, say, the other bullet points cited studies on page 13 of the Tukes report, would your opinions still be that Camp Lejeune water "as likely as not" caused kidney cancer or UTC -- UTUC in these plaintiffs?

MR. MANDELL: Objection. Form and asked and answered, but you can answer.

1 THE WITNESS: I mean, I don't
2 think it's a fair question because now I
3 know this literature. So it's kind of
4 hard for me to answer this.

5 BY MR. WHITE:

6 Q. If all you had to go on was the
7 MCLs, would that be sufficient?

8 MR. MANDELL: Objection.

9 THE WITNESS: Just the MCLs?
10 Probably would not be sufficient.

11 BY MR. WHITE:

12 Q. Okay. Let's take a look at
13 Exhibit 1, again. This is the Tukes report.

14 And if we look on page 4 and it says
15 "tetrachloroethylene (PCE) 82.85 micrograms per
16 liter."

17 And per your errata sheet, that
18 should read "micrograms per liter --

19 A. Month.

20 Q. -- month," correct?

21 A. Uh-huh.

22 Q. Okay. That figure 82.85 micrograms
23 per liter month for PCE, if I wanted to compare
24 that to, for instance, the first bullet point on

1 page 13, the Aschengrau figure of 27.1 to 44.1
2 milligrams of PCE.

3 If I wanted to compare those numbers
4 and I wanted to make sure that I was comparing
5 apples to apples, how would I do that?

6 A. You would probably have to have the
7 duration of the exposure as well, just because
8 milligrams and micrograms per liter is just I
9 think it gives the incomplete kind of the answer.

10 Q. And that's because there is a time
11 component to the unit microgram per liter month,
12 correct?

13 A. Yes.

14 Q. Okay. And there's also a unit for
15 concentration, i.e., the liter part of the
16 micrograms per liter month, correct?

17 A. Yes.

18 MR. WHITE: Okay. All right.
19 I'll try passing the witness one more
20 time.

21 MR. MANDELL: No, I have no
22 more questions.

23 MR. WHITE: Cool.

24 MR. MANDELL: But -- and we

1 can go off the record.

2 THE VIDEOGRAPHER: This
3 concludes for today's deposition this is
4 dated July 2, 2025. The time is 3:13 PM.

5
6 (Signature not waived, the
7 deposition concluded at 3:13 PM.)

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ERRATA SHEET

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DECLARATION UNDER PENALTY OF PERJURY

I declare under penalty of perjury that I have read the entire transcript of my Deposition taken in the captioned matter or the same has been read to me, and the same is true and accurate, save and except for changes and/or corrections, if any, as indicated by me on the DEPOSITION ERRATA SHEET hereof, with the understanding that I offer these changes as if still under oath.

Signed on the _____ day of _____, 2025.

ARMINE K. SMITH, MD

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CERTIFICATE OF REPORTER

DISTRICT OF COLUMBIA)

I, Denise Dobner Vickery, a
Registered Court Reporter and Notary Public of
the District of Columbia, do hereby certify that
the witness was first duly sworn by me.

I do further certify that the
foregoing is a verbatim transcript of the
testimony as taken stenographically by me at the
time, place and on the date herein set forth, to
the best of my ability.

I do further certify that I am
neither a relative nor employee nor counsel of
any of the parties to this action, and that I am
neither a relative nor employee of such counsel,
and that I am not financially interested in the
outcome of this action.



DENISE DOBNER VICKERY, CRR,RMR
Notary Public in and for the

District of Columbia

My Commission expires: March 14, 2028

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