Exhibit 617

1   IN THE UNITED STATES DISTRICT COURT
        FOR THE EASTERN DISTRICT OF NORTH CAROLINA
2   SOUTHERN DIVISION
                   NO. 7:23-CV-897
3

   IN RE:)
4   )
   CAMP LEJEUNE WATER LITIGATION)
5   )
)
6 This Document Relates to:)
   ALL CASES   )
7 _____)

8

9   VIDEOTAPED DEPOSITION OF
10   JUDY S. LAKIND, PH.D.,
11 a witness herein, called by the Plaintiffs for
12 examination, taken by and before Ann Medis, RPR,
13 CLR, CSR-WA, and Notary Public in and for the
14 Commonwealth of Pennsylvania, via Zoom
15 Videoconference, at Brockstedt Mandalas Federico,
16 2850 Quarry Lake Drive, Suite 220, Baltimore,
17 Maryland 21209, on Thursday, July 17, 2025,
18 commencing at 9:03 a.m.
19
20
21
22
23
24
25

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 1                    a P P E A R A N C E S
 2   On behalf of the PLG
 3            KELLER POSTMAN LLC
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 7
     On behalf of Defendant United States of America
 8
              U.S. DEPARTMENT OF JUSTICE
 9            BY:  KAILEY SILVERSTEIN, ESQUIRE
                   ANNA ELLISON, ESQUIRE
10                 ELIZABETH PLATT, ESQUIRE  (Zoom)
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14
     Also present via Zoom
15
     Cory Boyer
16   David Miceli
     Richard Schuhmann
17   Dean Sherman, summer clerk, Keller Postman
18   Bradley Loy, videographer
19
20
21
22
23
24
25
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 1                P R O C E E D I N G S
 2                       - - - -
 3                THE VIDEOGRAPHER:  We are now on the
 4   record.  My name is Bradley Loy.  I'm a
 5   videographer for Golkow, a Veritext Division.
 6   Today's date is July 17, 2025, and the time is
 7   9:03.  This video deposition is being held in
 8   Baltimore, Maryland, taken in the matter of Camp
 9   Lejeune Water Litigation, for the United States
10   District Court for the Eastern Division of North
11   Carolina, Southern Division.  The deponent is
12   Dr. Judy LaKind.
13                Will counsel please identify themselves.
14                MR. SNIDOW:  J.J. Snidow on behalf of
15   Plaintiff Leadership Group.
16                MR. SHERMAN:  Dean Sherman.  I'm a
17   summer associate at Keller Postman.
18                MR. MICELI:  Dave Micheli on behalf of
19   Plaintiff Leadership Group.
20                MS. SILVERSTEIN:  Kailey Silverstein on
21   behalf of the United States.
22                MS. ELLISON:  Anna Ellison of the United
23   States.
24                THE VIDEOGRAPHER:  The court reporter
25   and will now swear in the witness.
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1   JUDY S. LAKIND, PH.D.,

2   having been first duly sworn, was examined

3   and testified as follows:

4   EXAMINATION

5   BY MR. SNIDOW:

6   Q.   Good morning, Dr. Goodman. I'm J.J.

7   Snidow, and I think you understand I represent

8   some of the plaintiffs in this case.

9   A.   I do. It's Dr. LaKind.

10   Q.   Gosh. You know why? That's the next I

11 have. Do you know Dr. Julie Goodman?

12   A.   I do.

13   Q.   Is she the reason you became involved in

14 this case?

15   A.   I believe that's -- well, she's not the

16 reason I became involved, but I believe that the

17 initial contact with the DOJ was through her.

18   Q.   And tell me about that. How did you

19 first become -- how did you first hear about this

20 case? We'll start there.

21   A.   Well, I first heard about issues at Camp

22 Lejeune quite sometime ago from newspaper

23 articles. In this particular case, this is a

24 while ago now, but my memory is that Dr. Goodman

25 and I were talking, and she asked me if I ever did

 1 expert witness work. This is really based on

 2 memory from a long time ago, but this is how I

 3 think it went. And I hadn't, but she thought she

 4 might recommend me to her colleagues at the DOJ.

 5   Q.   Ballpark, approximately when was that?

 6   A.   Probably early 2023.

 7   Q.   Do you know when you were formally

 8 retained by DOJ?

 9   A.   I don't know the formal date. It was

10 mid 2023, I think.

11   Q.   And you said early 2023 is when you

12 first talked to Dr. Goodman about this case?

13   A.   It's an estimate.

14   Q.   Of course. When did you first begin

15 work on this case?

16   A.   Again, I believe it was around mid 2023.

17   Q.   When you first spoke to Dr. Goodman

18 about this case, am I correct that you had not yet

19 been retained by DOJ?

20   A.   That's correct.

21   Q.   And what did she tell you about the case

22 that you can remember?

23   A.   My memory is she told me almost nothing.

24   Q.   So she said, are you interested in doing

25 expert work. I assume you said yes.

```
 1        A.    Probably since I'm here.
 2        Q.    That's right.  Then do you know how it
 3   went from that conversation to you being retained?
 4             MS. SILVERSTEIN:  Object to foundation.
 5             THE WITNESS:  No.  I just know that I
 6   was contacted at some point by the DOJ.
 7   BY MR. SNIDOW:
 8        Q.    Had you testified in other cases?
 9        A.    I have not.
10        Q.    Have you given a deposition before?
11        A.    I have not.
12        Q.    I didn't know that.  Well, then I'll do
13   something I don't always do.  I think you
14   understand that you're under oath and you're
15   giving testimony just as if you were in a court of
16   law.  Yes?
17        A.    I do.
18        Q.    It's not a memory test.  So if you don't
19   recall, feel free to tell me that.  If you don't
20   understand the question, feel free to tell me
21   that.  If you need a break at any time, just tell
22   me that as well.  Okay?
23        A.    I am.
24        Q.    The flip side of all that is if you do
25   answer the question, I'm going to assume that you
```

1   understood it. So it is very important if you

2   don't understand, ask me to rephrase, tell me you

3   don't understand.

4   Does that all make sense?

5   A.   Yes, it does.

6   Q.   Ms. Silverstein might object to some of

7   my questions as she's done one time, and I'm sure

8   she will again. You can still answer the question

9   unless she instructs you not to on the grounds of

10   privilege or something else.

11   Does that make sense?

12   A.   It does.

13   Q.   Have you given expert reports before in

14   litigation?

15   A.   I think the best way to answer that is

16   to say that I have assisted in litigation, but I

17   have never had a report be used to my knowledge in

18   a case.

19   Q.   What do you mean when you say "assist in

20   litigation"?

21   A.   I have been asked to help with

22   scientific issues that were related to a case, but

23   it never evolved into an expert report.

24   Q.   Consistent with whatever obligations you

25   have to whoever you were working for, can you tell

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1   me what topic that case involved?

2   A.   I can tell you that it involved the

3   persistent organic pollutants.

4   Q.   Do you know who the client was?

5   A.   I do. I don't think I'm permitted to

6   share that.

7   Q.   Fair enough. Is that the only time that

8   you've done litigation work?

9   A.   Can you define litigation work?

10   Q.   So you said you've assisted in

11 litigation at times; right?

12   A.   Right. So there would be two, two of

13 those instances.

14   Q.   Were both of those regarding persistent

15 organic pollutants?

16   A.   Yes.

17   Q.   What did you do to prepare for this

18 deposition?

19   A.   Well, let's see. I reviewed my reports

20 and many other documents that I relied on for my

21 reports. I met with lawyers from the DOJ. And I

22 don't think I'm permitted to tell you what we

23 talked about.

24   Q.   You're not. Who was there though? You

25 can tell me that.

1   A.   Kailey and Anna.

2   Q.   Was that by Zoom or in person?

3   A.   By Zoom except one meeting in person.

4   Q.   Was that downtown at their office or

5 closer to you?

6   A.   It was downtown at their office.

7   Q.   How many times did you meet with DOJ

8 attorneys?

9   A.   Are you referring specifically to

10 deposition prep?

11   Q.   Yeah.

12   A.   I don't know the exact number, but I

13 would estimate five or six.

14   Q.   In preparing for this deposition, did

15 you speak to any other experts?

16   MS. SILVERSTEIN: Dr. LaKind, you can

17 answer the question, but on the basis of CMO 17,

18 please do not discuss anything that you talked

19 about with any other experts you may have met

20 with.

21   THE WITNESS: So specifically for

22 preparing for the deposition, no, I did not meet

23 with other experts.

24 BY MR. SNIDOW:

25   Q.   How about before you submitted your

 1   reports, did you speak to other experts?

 2   A.   Yes, I did.

 3   Q.   Which ones?

 4   A.   Well, there were numerous experts. And

 5   it's been a couple of years of work, but I can --

 6   I'm sure I can name some of them. Dr. Goodman,

 7   Dr. Lisa Bailey, Dr. Hennet, Dr. Spilotopoulos,

 8   Dr. Lipscomb. I believe I spoke briefly with an

 9   historian, and I don't remember his name.

10   Q.   Were these by Zoom?

11   A.   They were all by Zoom with one

12   exception. Several of us had a field trip to Camp

13   Lejeune, and I had some conversations with experts

14   during that time.

15   Q.   Who went on the site visit?

16   A.   So Dr. Hennet was there. I think

17   Dr. Spilotopoulos. I'm not sure. One of the

18   historians was there. And if there were others, I

19   didn't interact with them.

20   Q.   What was the purpose of the site visit?

21   A.   To understand the layout of the base.

22   Q.   Did you speak with any base personnel,

23   either Navy, Marines, civilians while you were

24   there?

25   MS. SILVERSTEIN: Dr. LaKind, you can

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1 answer. But to the extent your answer involves

2 any information about what you discussed, I'll

3 instruct you not to answer.

4   THE WITNESS: Yes. There were people

5 who stated that they were affiliated with the

6 base.

7 BY MR. SNIDOW:

8   Q.   Am I correct that you wrote 25 reports

9 in this case?

10   A.   I wrote 25 reports that were submitted

11 as expert reports, yes.

12   Q.   Were there any reports you wrote that

13 were not submitted?

14   MS. SILVERSTEIN: Dr. LaKind, the

15 reports that were not submitted are protected by

16 CMO 17. So I'll instruct you not to discuss any

17 draft reports that you prepared.

18   THE WITNESS: Okay.

19   MR. SNIDOW: Thus far I'm going to ask

20 if she prepared them. We won't go into what they

21 are.

22   MS. SILVERSTEIN: You can ask if she

23 prepared them, but who they pertain to or what

24 they involve --

25   MR. SNIDOW: Of course.

 1   MS. SILVERSTEIN: -- I'll instruct her

 2   not to answer.

 3   THE WITNESS: The answer is yes.

 4   BY MR. SNIDOW:

 5   Q.   Are all the opinions that you intend to

 6   offer contained within the 25 reports that you

 7   submitted?

 8   A.   I think it depends on what questions you

 9   ask me. But generally, I would say yes.

10   Q.   Fair enough. Are all the materials that

11   you relied upon contained in the materials

12   considered list in those reports?

13   A.   I believe they are.

14   Q.   Do you have any notes, either

15   handwritten or electronic, that you kept while

16   preparing your reports?

17   A.   Very few.

18   Q.   But maybe?

19   A.   Yes.

20   Q.   Handwritten or electronic?

21   A.   I think both.

22   Q.   Did you prepare any slides related to

23   your opinions in this case?

24   A.   I assume you're referring to PowerPoint

25   slides. Yes. I have some PowerPoint slides.

 1   Q.   What's the purpose of those slides?

 2   MS. SILVERSTEIN: Dr. LaKind, to the

 3   extent these are about any slides you present for

 4   presentation to DOJ, those are protected by

 5   attorney/client privilege, and I instruct you not

 6   to answer.

 7   THE WITNESS: I can't answer.

 8   BY MR. SNIDOW:

 9   Q.   Did you prepare slides for any other

10   purpose other than presenting to counsel?

11   A.   No.

12   Q.   Did you prepare slides for the purpose

13   of presenting to other experts?

14   A.   Only insofar as if there were other

15   experts at the same meeting where the attorneys

16   were present.

17   Q.   When you spoke to the other experts, was

18   it one on one or all in a group? What I mean is

19   was it just a Zoom with you and Dr. Bailey and

20   then a Zoom with Dr. Hennet and you and a Zoom

21   with you and Dr. Spilotopoulos, or were there

22   multiple experts all on the same Zoom?

23   A.   So it was a mix. It depended on the

24   meeting.

25   Q.   Was there ever a meeting in which all of

1   the experts that you named for me were on the same

2   Zoom?

3   A.   I don't remember.

4   Q.   Fair enough. Was there a meeting when

5   Dr. Bailey and Dr. Goodman were on the same Zoom?

6   A.   I think there might have been one.

7   Q.   Have you read the text of the Camp

8   Lejeune Justice Act?

9   A.   Not in its entirety.

10   Q.   Did you apply the at least as likely as

11   not standard when writing your reports?

12   MS. SILVERSTEIN: Object to form and

13   foundation.

14   THE WITNESS: I did not.

15   BY MR. SNIDOW:

16   Q.   Are you aware that the Camp Lejeune site

17   has been remediated?

18   MS. SILVERSTEIN: Object to foundation.

19   THE WITNESS: I'm not familiar with

20   remediation activities at the site.

21   BY MR. SNIDOW:

22   Q.   Fair enough. But are you aware that it

23   has been remediated?

24   A.   I am aware that the water treatment

25   plant for Tawara Terrace was shut down and that

```
 1   concentrations of chemicals it had in Tawara
 2   treatment plant were substantially reduced;
 3   presumably remediation, but I can't speak to
 4   remediation.
 5       Q.   What is the largest meeting that you had
 6   with experts, I mean the highest number of experts
 7   that you can recall?
 8            MS. SILVERSTEIN:  Object to form.
 9            THE WITNESS:  You want the number of
10   people?
11   BY MR. SNIDOW:
12       Q.   Start there.
13       A.   These were Zoom calls, and I didn't
14   necessarily scroll across.  Are you asking me to
15   guess?
16       Q.   Estimate it.  Is it more than five?
17       A.   Yes.
18       Q.   More than ten?
19       A.   Yes.  I believe there was a meeting
20   where there were more than ten.
21       Q.   That was by Zoom or in person?
22       A.   By Zoom.
23       Q.   Do you know the background rate for the
24   kidney cancer?
25       A.   I do not.
```

 1   MS. SILVERSTEIN: Object to form.

 2   BY MR. SNIDOW:

 3   Q.   If I ask you the same question for any

 4   of the other diseases, bladder cancer, NHL,

 5   leukemia and Parkinson's, would you give me the

 6   same answer?

 7   MS. SILVERSTEIN: Object to form.

 8   THE WITNESS: I would.

 9   BY MR. SNIDOW:

10   Q.   Do you agree that risk assessment is

11   ultimately based on results either from the animal

12   studies or human epidemiology?

13   A.   I'm sorry. Ask the question again.

14   Q.   You're familiar with risk assessment;

15   right?

16   A.   I am.

17   Q.   And you're actually an expert in risk

18   assessment; right?

19   A.   I am.

20   Q.   Do you agree that risk assessment is

21   ultimately based on the results from either animal

22   studies or human epidemiology?

23   A.   No, I don't.

24   Q.   What else is it ultimately based on?

25   A.   Risk assessment is based on information

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1   from a wide array of disciplines and studies,

2   including single-cell studies and geologic studies

3   and just numerous all other studies. All of that

4   information is combined.

5   Q.   That's fair. When doing risk

6   assessment, you know what a cancer slope factor

7   is; right?

8   A.   I do.

9   Q.   And inhalational unit risk?

10   A.   I do.

11   Q.   Those are ways of estimating a

12 dose-response curve; would you agree?

13   A.   They don't estimate the dose-response

14 curve, no.

15   Q.   How would you put it?

16   A.   They describe the relationship between

17 exposure and effect. I think I'll stop there.

18 They describe the relationship between exposure

19 and effect.

20   Q.   Fair enough. And those units, either

21 the cancer slope factor or the inhalational unit,

22 those two measures are ultimately based on either

23 human epidemiology or animal studies?

24   MS. SILVERSTEIN: Object to form.

25   THE WITNESS: The underlying foundation

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1 is, generally speaking, human or animal study.

2 There are newer developments that are happening

3 now, but I would say the existing ones are

4 predominantly human and animal studies, yes.

5 BY MR. SNIDOW:

6   Q. Do you agree in general, it's preferable

7 to use human epidemiology?

8   MS. SILVERSTEIN: Object to form.

9   THE WITNESS: I do not.

10 BY MR. SNIDOW:

11   Q. All else equal, you wouldn't agree?

12   A. I don't know what you mean by "all else

13 equal."

14   Q. If you've got animal studies and human

15 epidemiology and you think the human epidemiology

16 is high quality, you would use human epidemiology;

17 right?

18   A. I disagree with that.

19   Q. You haven't published something to that

20 effect before?

21   A. No, not stating that exactly how you

22 stated it.

23   Q. How would you put it?

24   A. That a risk assessment relies on a

25 careful and systematic evaluation of all available

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1 animal and human research. Here I'm talking about

2 the toxic potency component of the risk assessment

3 and an examination of quality, of uncertainty, of

4 reproducibility. There are many factors that go

5 into deciding ultimately which study one is going

6 to use as the basis for the toxic potency factor.

7   Q.   Do you agree that risk assessment is not

8 an exact science?

9   A.   Yes. I would agree with that.

10   Q.   Why is that?

11   A.   I can't think of a science offhand, a

12 scientific discipline that is exact.

13   Q.   Physics maybe.

14   A.   I was going to carve that one out.

15 There's just uncertainty and variability inherent

16 in life.

17   Q.   Do you agree that it's possible for risk

18 assessments to underestimate risk?

19   MS. SILVERSTEIN: Object to form and

20 foundation.

21   THE WITNESS: I believe it's possible

22 for it to underestimate or overestimate risk.

23 BY MR. SNIDOW:

24   Q.   Fair enough. Did you use -- did you

25 rely upon the water modeling performed by ATSDR

```
 1   when creating your reports?
 2        A.    I relied on their data they published as
 3   an outcome of their methodology.
 4        Q.    And the purpose that you're using it for
 5   was to calculate the exposure for the 25
 6   plaintiffs that you looked at; right?
 7             MS. SILVERSTEIN:   Object to form.
 8             THE WITNESS:   It was a component of the
 9   overall risk assessment.
10   BY MR. SNIDOW:
11        Q.    You didn't perform the risk assessment;
12   right?
13        A.    I'm sorry.   That was a mistake.   I meant
14   to say exposure assessment.
15        Q.    Of course.   So we'll just clean up the
16   record.   The purpose you used the water modeling
17   for was to create an exposure assessment for each
18   of the 25 plaintiffs; right?
19        A.    It was a component of the overall
20   exposure assessment, yes.
21        Q.    You did not use the ATSDR concentration
22   levels to do epidemiology; true?
23        A.    That's correct.
24        Q.    You did not use it to simply do relative
25   exposure.   What I mean by that is you didn't just
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1   categorize the plaintiffs into high, medium and
2   low. You the actually calculated absolute the
3   exposures; correct?
4   MS. SILVERSTEIN: Object to form and
5   foundation.
6   THE WITNESS: I agree with the first
7   part. I did not group plaintiffs in any kind of
8   high, medium, low category.
9   What was the second half of the
10 question?
11 BY MR. SNIDOW:
12   Q.   I'll give another one. Thank you for
13 that.
14   You used the chemical concentrations in
15 the ATSDR water modeling to calculate absolute
16 exposures for each of the plaintiffs; true?
17   A.   It's not clear to me what you mean by
18 "absolute."
19   Q.   The ultimate number that you calculated
20 I believe was a number of micrograms per kilogram
21 per day; correct?
22   A.   That's correct.
23   Q.   And that is an absolute number, like 115
24 or something like that; correct?
25   A.   I would call it a specific number.

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     1   Q.   Perfect. Fair enough. You agree there

     2   nothing wrong with using the ATSDR concentrations

     3   to calculate a specific exposure number for

     4   plaintiffs; true?

     5   MS. SILVERSTEIN: Object to form and

     6   foundation.

     7   THE WITNESS: I believe what you're

     8   asking me is are there any issues, for lack of a

     9   better word, with the ATSDR data.

    10   BY MR. SNIDOW:

    11   Q.   I'm not.

    12   A.   You're not?

    13   Q.   No. But we can clear this up now.

    14   You're not a water modeler; correct?

    15   A.   I am not.

    16   Q.   You don't have any opinions on whether

    17   the water modeling was done well or not well or

    18   anywhere in between; true?

    19   MS. SILVERSTEIN: Object to form.

    20   THE WITNESS: I do not.

    21   BY MR. SNIDOW:

    22   Q.   My question is a little different.

    23   Assuming that the water modeling was done well,

    24   there's nothing wrong with using those numbers to

    25   calculate a specific exposure number for an

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1 individual person; right?

2   MS. SILVERSTEIN: Object to foundation.

3   THE WITNESS: There are obvious

4 uncertainties that are introduced in using the

5 data that they produced, but given that it was the

6 most comprehensive dataset available, I found it

7 acceptable to use.

8 BY MR. SNIDOW:

9   Q.   If someone said that this ATSDR water

10 modeling can only be used for epidemiology, you,

11 of course, have to disagree?

12   MS. SILVERSTEIN: Object to form and

13 foundation.

14   THE WITNESS: I don't agree that it

15 could only be used for epidemiology.

16 BY MR. SNIDOW:

17   Q.   Is there any better data on chemical

18 concentrations at Camp Lejeune other than the

19 ATSDR water modeling that you're aware of?

20   MS. SILVERSTEIN: Object to form and

21 foundation.

22   THE WITNESS: I'm not aware of any other

23 comprehensive dataset.

24 BY MR. SNIDOW:

25   Q.   Beside the ATSDR water modeling, are you

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1   aware of any other data that you could have used

2   to model the plaintiffs' exposures?

3   A.   I'm not.

4   Q.   You relied upon deposition transcripts

5   in computing -- excuse me. Strike that.

6   You relied on deposition transcripts in

7   estimating the plaintiffs' exposures; true?

8   A.   I relied to a partial extent on

9   information that I obtained from the depositions

10   to help me guide my decision making on the values

11   that I used in the modeling for exposure.

12   Q.   Am I correct the reason that you relied

13   upon deposition transcripts is because you could

14   not locate any contemporaneous documentation of

15   people's exposures?

16   A.   So let me start with the second half. I

17   did not identify any contemporaneous information

18   specific to plaintiffs during the time that they

19   were at Camp Lejeune. But I relied on their

20   information along with other information because

21   that's how exposure assessment is done.

22   Q.   Besides the -- other than the deposition

23   transcripts, are you aware of any better

24   information showing what the plaintiffs were

25   exposed to while on base?

 1   MS. SILVERSTEIN: Object to foundation.

 2   THE WITNESS: So I think I need you to

 3   reword that because the depositions didn't speak

 4   directly to what they were exposed to.

 5   BY MR. SNIDOW:

 6   Q.   That's fair. I'll restate.

 7   Besides the deposition, any better

 8   information that you're aware of that showed the

 9   behavior of the plaintiffs while they were on

10   base?

11   MS. SILVERSTEIN: Object to form.

12   THE WITNESS: I don't generally like

13   ranking data sources. It's very plaintiff and

14   behavior specific. So I would need you to give me

15   a very specific example.

16   BY MR. SNIDOW:

17   Q.   What other documentation did you use to

18   assess behavior of the plaintiffs while on base?

19   A.   So sort of a long list. But as one

20   example, most people don't know how much air

21   they're breathing over the course of a day or a

22   minute, and there are studies that describe that.

23   So I used information predominantly from EPA and

24   ATSDR on inhalation rates. I don't know how many

25   examples you want.

1   Q.   That's good.   Let me just clarify

2   though.   You're talking about something a little

3   different than behavior.   You're talking about how

4   much air people were breathing.

5   MS. SILVERSTEIN: Object to form.

6   THE WITNESS: Which is related to

7   behavior.   If you ran all day, that would be a

8   different inhalation rate than if you were sitting

9   at your desk all day.

10   BY MR. SNIDOW:

11   Q.   How about in terms of determining where

12   plaintiffs lived on base, their activities on

13   base, any better the source of information other

14   than deposition transcripts that you're aware of?

15   MS. SILVERSTEIN: Object to form.

16   THE WITNESS: For living on base in

17   addition to depositions, there were -- for some

18   plaintiffs there were housing records.   I can't

19   think of anything else right now.   Maybe later.

20   BY MR. SNIDOW:

21   Q.   Fair enough.   So besides deposition

22   transcripts and the housing records, you're not

23   aware of any better source of data for determining

24   where people lived on base and where they went

25   while they were there?

 1   MS. SILVERSTEIN: Object to form.
 2   THE WITNESS: That's correct. For the
 3   where and the how they behaved, I would say that's
 4   correct.
 5   BY MR. SNIDOW:
 6   Q.   The ultimate exposure metric that you
 7   estimated was milligrams per kilogram per day of
 8   exposure to each of the chemicals; correct?
 9   A.   That's not correct.
10   Q.   Is it micrograms per kilogram per day?
11   A.   I won't quibble, the mass designation.
12   For ingestion would be milligram per kilogram per
13   day. For the dermal exposure, also milligram per
14   kilogram per day. For inhalation, I included
15   milligram -- I think in that case microgram per
16   kilogram per day because it was part of the model
17   results. But I also included air concentrations
18   in microgram per meter cubed as that's the unit
19   needed by the risk assessors.
20   Q.   So on the exposure that you used for
21   air, microgram per meter cubed, you'd agree that
22   does is not have a measure of the plaintiffs'
23   weight included; correct?
24   A.   That's correct.
25   Q.   That's a perfectly valid measure of

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1 exposure even though it doesn't include the

2 plaintiffs' weight; right?

3   MS. SILVERSTEIN: Object to form.

4   THE WITNESS: Let me think about that

5 for a second.

6   Right. So just to be clear, if we're

7 talking about exposure in its strictest sense,

8 there are many ways of expressing units of

9 exposure. For example, when we evaluate blood

10 leads, we present that as microgram per liter

11 blood. So body weight is not always included in

12 the direct exposure measurement.

13 BY MR. SNIDOW:

14   Q.   You said not always included?

15   A.   In that component of an overall risk

16 assessment, in just the exposure component, the

17 units can vary.

18   Q.   And sometimes do not include the weight

19 of the person; true?

20   A.   That's correct.

21   Q.   You did not calculate the

22 absolute cumulative mass of chemicals ingested by

23 the plaintiff in micrograms, milligrams dose.

24 Straight up SI mass units; right?

25   MS. SILVERSTEIN: Object to form.

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 1            THE WITNESS:  I did not.
 2    BY MR. SNIDOW:
 3         Q.   You did not calculate the exposure of
 4    the plaintiffs in terms of microgram per
 5    liter-months; true?
 6         A.   That's correct.
 7         Q.   If you had been asked, would you have
 8    been able to calculate exposure in those units?
 9         A.   You mean am I capable of doing that?
10         Q.   Yes, ma'am.
11         A.   Yes, I am.
12         Q.   I knew you were.  I needed to ask for
13    the record.
14            You made your conclusions about an
15    individuals' exposure to a reasonable degree of
16    scientific certainty; true?
17         A.   So just to be clear, while the reports
18    were plaintiff specific, what I was modeling was
19    exposure to people with the characteristics of the
20    plaintiff.  So in that sense, it would be a
21    population representing or similar to that
22    individual.
23         Q.   Tell me why you're making that caveat.
24         A.   I'm making that caveat because it is --
25    it's unusual, especially in an historical exposure
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 1   assessment, to know exactly what anyone was ever

 2   exposed to every single day, every single evening

 3   day after day. So we make assumptions that we --

 4   careful assumptions that we think represent

 5   people, for example, like a particular plaintiff.

 6   Q.   So if I'm understanding right, the most

 7   accurate way to characterize your exposure metric

 8   is the exposure that you'd expect in a population

 9   who behaved similarly to each of the plaintiffs?

10   A.   Behave, similar size, similar -- lots of

11   similarities, right.

12   Q.   Is the reason for this caveat because

13   exposure assessment is designed to look at

14   populations rather than specific individuals?

15   A.   The exposure assessment can look at an

16   individual, but in this case, for these 25

17   plaintiffs, I felt it was more appropriate to

18   think about it on a population basis.

19   Q.   Rather than an individual basis?

20   A.   Correct.

21   Q.   Do you agree that the risk of one cancer

22   from a chemical can be different than the risk of

23   another cancer from the same chemical?

24   MS. SILVERSTEIN: Object to form and

25   foundation.

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1   THE WITNESS: I don't know what that

2   means.

3   BY MR. SNIDOW:

4   Q.   Sunlight I think you agree causes skin

5   cancer; right?

6   MS. SILVERSTEIN: Object to form and

7   foundation.

8   THE WITNESS: It's not my area

9   expertise, but I will say okay.

10   BY MR. SNIDOW:

11   Q.   Even though it's not your area of

12   expertise, sunlight causes lung cancer; true?

13   MS. SILVERSTEIN: Object to foundation.

14   THE WITNESS: I have not seen that.

15   BY MR. SNIDOW:

16   Q.   So when you're trying to figure out the

17   risk of a certain chemical for cancer, it matters

18   what cancer you're talking about; is that fair?

19   A.   If it's understood. And just to be

20   clear, some chemicals are associated with more

21   than one kind of cancer.

22   Q.   But even for things like the cancer

23   slope for a particular chemical, sometimes there

24   are different cancer slopes for different types of

25   cancer; true?

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 1   MS. SILVERSTEIN: Object to form and

 2   foundation.

 3   THE WITNESS: I'm going to remind you

 4   that I did not evaluate this for this case. So I

 5   can only speak in generalities right now. But the

 6   cancer slope factor will be dependent on the

 7   specific study used to generate it, which is

 8   generally specific to either one or more chemicals

 9   and a health endpoint.

10   BY MR. SNIDOW:

11   Q.   Like a particular cancer?

12   MS. SILVERSTEIN: Object to foundation.

13   THE WITNESS: I'm not sure. I don't

14   know if some cancers get grouped together. This

15   is falling outside of my area of expertise.

16   BY MR. SNIDOW:

17   Q.   Fair enough. Do you think it's

18   appropriate to look at the epidemiology for, say,

19   brain cancer to evaluate the risk of, say, lung

20   cancer?

21   MS. SILVERSTEIN: Object to form and

22   foundation.

23   THE WITNESS: This is getting very

24   outside my area.

25

1   BY MR. SNIDOW:

2   Q.   In your report, you note that you had to

3   use professional judgment; true?

4   A.   That's correct.

5   Q.   In what areas did you have to deploy

6   your judgment for in this case?

7   A.   Well, you want an example? Is that what

8   you're asking me? So one example might be that

9   for the plaintiffs who worked in the mess hall

10 only -- I'd have to look at the reports, but my

11 memory is that only one of them provided hours per

12 day. So I used information that I saw online or

13 information about general workdays and mess hall

14 hours to develop an hours per day for that

15 plaintiff.

16   So I had some information. I didn't

17 have exact information. So I used my judgment.

18   Q.   To estimate an average maybe?

19   A.   No. I tried to be more conservative

20 than that. In this case, I estimated what I

21 thought was a high end.

22   Q.   Any other areas of your analysis where

23 you had to deploy professional judgment?

24   A.   Well, professional judgment is an

25 integral part of most scientific endeavors

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 1   including exposure assessment.

 2   One other example I can give you is in

 3   working to model residential exposures. I needed

 4   to understand how many hours per day a plaintiff

 5   or their family members may have been out of the

 6   house. And very few plaintiffs were specific

 7   about that, or they were specific, but it was very

 8   variable. So I needed to rely on professional

 9   judgment, and my understanding of typical workdays

10   and just other information gathered from 35 years

11   of doing this to come up with an estimate.

12   Q.   You ultimately estimated exposures to

13   the chemicals for a 24-hour period; right?

14   A.   For residential and barracks and

15   ingestion exposure, that's correct. For mess hall

16   and swimming pool, that's incorrect.

17   Q.   For those it was less than a 24-hour

18   period?

19   A.   For mess haul, it was 16 hours, and for

20   that swimming pool, time was not a factor.

21   Q.   Then to convert those -- strike that.

22   You did not convert your one day or less

23   than one day estimate into an estimate of the

24   plaintiffs' long-term exposure; true?

25   MS. SILVERSTEIN: Object to form.

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 1   THE WITNESS: That's correct.

 2   BY MR. SNIDOW:

 3   Q.   That's what Dr. Bailey did; correct?

 4   A.   That's correct.

 5   Q.   Am I correct you could have done that

 6   part of Dr. Bailey's analysis yourself given your

 7   expertise; true?

 8   MS. SILVERSTEIN: Object to form and

 9   foundation.

10   THE WITNESS: Yes, that's true.

11   BY MR. SNIDOW:

12   Q.   If you had been asked by DOJ to, say,

13   estimate someone's total exposure in micrograms

14   per kilogram, you would have been able to do that?

15   A.   Well, it would have been microgram per

16   kilogram per day. And, yes, I could have done

17   that.

18   Q.   Just for the record, it's microgram

19   divided by kilogram-day is what you mean there?

20   A.   That's correct.

21   Q.   Why didn't you do it?

22   A.   So it was partly or mainly a matter of

23   resources. So in understanding frequency and

24   duration of exposure, it requires more

25   information. I was working without staff. And it

 1 was my understanding that Dr. Bailey had staff

 2 available. And so she did that component.

 3   (LaKind Exhibits 1 - 2 were marked.)

 4 BY MR. SNIDOW:

 5   Q.   Dr. LaKind, I'm going to mark as

 6 Exhibits 1 and 2 to your deposition, two of your

 7 expert reports, one for plaintiff Dyer and one for

 8 plaintiff Mousser. We'll mark Dyer as 1 and

 9 Mousser as 2.

10   MS. SILVERSTEIN: You said Dyer 1,

11 Mousser 2?

12   MR. SNIDOW: Yep. Go off the record for

13 a second.

14   THE VIDEOGRAPHER: We are off the record

15 the time is 9:41.

16   (Recess from 9:41 a.m. to 9:42 a.m.)

17   THE VIDEOGRAPHER: We are on the record

18 at the 9:42.

19 BY MR. SNIDOW:

20   Q.   Dr. LaKind, am I correct that Exhibit 1

21 is the report you prepared in the Dyer case and

22 Exhibit 2 is the report that you prepared in the

23 Mousser case?

24   MS. SILVERSTEIN: Do you have a copy of

25 2? I have 1.

 1   THE WITNESS: So I obviously don't

 2   have -- I think that you don't want me to actually

 3   read these and compare them to my original report.

 4   So I think what I'm allowed to say is that based

 5   on just the cover sheet and just flipping through,

 6   it appears to be what I produced.

 7   BY MR. SNIDOW:

 8   Q.   You can put them to the side for now.

 9   We're going to come back to them.

10   What is your hourly rate?

11   A.   My current hourly rate is $575 an hour.

12   Q.   Do you have any staff at all that has

13   billed for your work on Camp Lejeune?

14   A.   I do not.

15   (LaKind Exhibits 3 - 5 were marked.)

16   BY MR. SNIDOW:

17   Q.   I'll mark as Exhibit 3 a composite

18   exhibit that we made of your invoices that were

19   produced to us. This is going to be Exhibit 4.

20   This is additional invoices.

21   MS. ELLISON: Do you have an extra copy?

22   MS. SILVERSTEIN: Is that an extra copy

23   for us?

24   MR. SNIDOW: Yeah. That's three.

25   That's four.

 1 BY MR. SNIDOW:
 2   Q.   And 5. I'm definitely not asking you to
 3 go through each one of these. But does the
 4 letterhead appear to be from your office?
 5   A.   Yes, it is.
 6   Q.   Do these appear to be the invoices that
 7 you submitted to the government for your work?
 8   A.   So these appear to be at least for
 9 Exhibit 3 a mixture of invoices and I think
10 contract language.
11   Q.   Have you totaled up the amount that
12 you've billed in this case?
13   A.   So the short answer is yes. It exists
14 because I keep a running tally. Well, I guess
15 that's what you're asking. So yes.
16   Q.   Am I correct that your billing so far
17 has been more than $800,000?
18   A.   That sounds right.
19   Q.   You can put those to the side for now.
20   A.   Should I keep them in order? Are you
21 coming back to these?
22   Q.   I would keep them in order.
23   Dr. LaKind, I want to talk about the
24 scope of your opinions for a little bit.
25   You are not offering an opinion on

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 1   causation in this case; true?
 2        A.   That's correct.
 3        Q.   You're not offering an opinion on the
 4   quality of epidemiology in this case?
 5        A.   That's correct.
 6        Q.   You're not offering an opinion on water
 7   modeling?
 8        A.   That's correct.
 9        Q.   Or the quality of the ATSDR water
10   modeling; true?
11        A.   That's correct.
12        Q.   You're not offering an opinion on
13   whether any of the exposures you calculated are
14   sufficient to cause harm?
15        A.   That's correct.
16        Q.   Not offering an opinion on whether the
17   exposures you calculated can be compared to any
18   epidemiology; right?
19        A.   Can be?  That's correct.
20        Q.   And you certainly did not do any
21   comparisons with the epidemiology?
22        A.   That's correct.
23        Q.   You're not offering an opinion on
24   whether the exposures you calculated can be used
25   in an individual risk assessment, are you?
```

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 1   A.   I would word that as being encompassing
 2   can or can't be. So that would be correct.
 3   Q.   You are not offering a risk assessment
 4   yourself; true?
 5   A.   That's correct.
 6   Q.   You did not perform any margin of
 7   exposure analysis?
 8   A.   I did not.
 9   Q.   You did not conduct a hazard assessment
10   for any of these chemicals?
11   A.   I did not.
12   Q.   You did not perform a Bradford Hill
13   analysis; true?
14   A.   I did not.
15   Q.   Or a meta-analysis of any literature;
16   true?
17   A.   That's correct.
18   Q.   You did not perform a systematic review
19   of any literature; true?
20   A.   I did not.
21   Q.   You did not perform a grade analysis of
22   any literature?
23   A.   I did not.
24   Q.   Am I correct you are capable of
25   performing systematic reviews, meta-analysis and

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 1   grade reviews?

 2   MS. SILVERSTEIN: Object to form.

 3   THE WITNESS: I am capable of performing

 4   systematic review with others. They're generally

 5   not done solo. I am not capable of performing a

 6   meta-analysis. And I have never -- I'm familiar

 7   with grade analyses. I have never performed one,

 8   and so I can't comment on whether I would be able

 9   to or not.

10   BY MR. SNIDOW:

11   Q.   You have performed systematic reviews

12   before?

13   A.   That's correct.

14   Q.   You didn't review any risk factors for

15   individual plaintiffs; true?

16   A.   Are you talking about disease risk

17   factors?

18   Q.   Yes, ma'am.

19   A.   Then that's correct.

20   Q.   What role were you asked to perform in

21   this case?

22   A.   I was retained to assess exposures to

23   plaintiffs at Camp Lejeune.

24   Q.   Were you asked to assess exposures in

25   any particular way?

1   A.   I believe this is falling under the area

2 of conversations with attorneys.

3   Q.   I think you -- Ms. Silverstein is not

4 objecting, and I think the reason is I'm allowed

5 to ask what you were asked to do in this case.

6   A.   Then ask me the question again.

7   Q.   Were you asked to calculate exposures in

8 any particular way?

9   A.   There were discussions about possible

10 ways.

11   Q.   What other ways did you consider?

12   A.   I'm not going to say I considered these,

13 but one other way that was discussed was to

14 determine whether plaintiffs could be -- I'm not

15 going to say this probably very well, but could be

16 organized according to their exposure levels.

17   Q.   Tell me more. What do you mean by

18 organized?

19   A.   At the time if my memory is right, my

20 understanding was that there were many more

21 plaintiffs that were to be evaluated. It was a

22 very short amount of time. So the kind of

23 analysis that I ended up doing it would simply not

24 have been possible.

25   So the question was could you perhaps

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1   have some group of plaintiffs that were similar

2   enough to each other that they could be treated

3   similarly as far as exposure assessment goes or

4   not.

5   Q.   Similar enough based on, I assume, a

6   more limited universe of information, like housing

7   records?

8   A.   I don't recall the conversation getting

9   that far.

10   Q.   Why didn't you ultimately perform this

11   analysis?

12   A.   Well, I can't remember the exact

13   timeline, but it became clear at some point that

14   there would be fewer plaintiffs and a longer

15   timeline. So there was no need to do that.

16   Q.   So for now, put aside any plaintiffs

17   except the 25. For the 25, were you asked to

18   calculate exposure in a certain way?

19   MS. SILVERSTEIN: Object to form.

20   THE WITNESS: No, I was not.

21   BY MR. SNIDOW:

22   Q.   Were you asked to calculate exposure in

23   terms of micrograms per kilogram per day?

24   A.   I was not told or asked to do my

25   exposure assessment in any particular way. I was

 1   asked to do the exposure assessment, period.

 2   Q.   Were you asked to calculate exposure in

 3   a way that could be used in a risk assessment?

 4   A.   Yes. It was my understanding that my

 5   results would be a component of the risk

 6   assessment.

 7   Q.   So you knew that whatever input you came

 8   up with needed to be in units that could be used

 9   in a risk assessment?

10   A.   Yes.

11   Q.   Were you asked to --

12   A.   Can I add to that? It doesn't mean that

13   I couldn't have also chosen other units in

14   addition. No one told me not to do something.

15   Q.   Did anyone ever ask you calculate

16   exposure in a way that can be compared to

17   epidemiology?

18   A.   By the question I'm thinking that what

19   you're saying is that epidemiology never has units

20   in milligram per kilogram day.

21   Q.   No, I didn't mean to imply that. But

22   sometimes it doesn't you'd agree; right?

23   A.   That's correct.

24   Q.   Were you ever asked to calculate

25   exposure in a way that can be compared to any of

```
 1    the epidemiology on these chemicals or the water
 2    at Camp Lejeune?
 3              MS. SILVERSTEIN:  Object to form.
 4              THE WITNESS:  No, I was not.
 5    BY MR. SNIDOW:
 6        Q.   If you look at Exhibit 2, it should be
 7    your Mousser report.
 8        A.   Correct.
 9        Q.   Do you mind turning to page 13.  I want
10    to walk through the steps of your analysis.
11              Am I correct that your analysis began
12    with looking at the concentration levels in the
13    water at Camp Lejeune?
14        A.   If you're asking me for a chronological
15    order of how I obtained information, I don't
16    recall.
17        Q.   In your report, that's I think the first
18    thing that gets discussed.
19        A.   That's a question?
20        Q.   Yes, ma'am.
21        A.   In terms of data, yes, I chose to
22    discuss water concentrations first.
23        Q.   It looks like you reviewed expert
24    reports for Dr. Hennet and Dr. Spilotopoulos.
25        A.   I did.
```

1   Q.   You also reviewed the ATSDR water

2 modeling report; true?

3   A.   Yes, yes.

4   Q.   Then if you look at your report on page

5 23, in the bottom paragraph it says that you

6 looked at a spreadsheet compiled by S.S.

7 Papadopulos & Associates?

8   A.   That's correct.

9   Q.   Who is that?

10   A.   That would be the company that employs

11 Dr. Hennet and Dr. Spilotopoulos. I assume

12 they're employees. I didn't ask them their

13 status.

14   Q.   When you're referring to that Excel

15 spreadsheet, was that summarizing the numbers that

16 were in the reports that you reviewed?

17   A.   I was not summarizing the numbers. It

18 was a direct translation of the numbers.

19   Q.   Put a different way though, all of the

20 numbers that were in the Excel spreadsheet were in

21 the expert reports that you reviewed?

22   A.   I'm hesitating because I don't remember

23 if the spreadsheets went beyond the timeframe of

24 the Camp Lejeune Act. And the ATSDR report had

25 additional years.

1   Q.   But with that caveat, is what I said

2   correct?

3   A.   Yes.

4   Q.   On page 24, the bottom of the first full

5   paragraph, you say, "Based on the information in

6   these expert reports, the ATSDR concentration

7   described in this report as well as the associated

8   estimates of plaintiff exposure would be overly

9   conservative (too high)." Right?

10   A.   That's what I'm reading here, yes.

11   Q.   Am I right that is not an independent

12   opinion of yours. That's just based on what

13   Dr. Spilotopoulos said and Dr. Hennet?

14   MS. SILVERSTEIN: Object to form.

15   THE WITNESS: That's correct.

16   BY MR. SNIDOW:

17   Q.   When you say too high, you did not try

18   to calculate more accurate numbers; fair?

19   A.   I did not try to take into account the

20   conservative nature of these chemicals in

21   completing my exposures.

22   Q.   You're not aware of any better set of

23   numbers to use besides the one you did; true?

24   A.   I'm unaware of any other set of numbers

25   that are as comprehensive.

1   Q.   You did not have data for each -- for

2   the concentrations on each day that the plaintiffs

3   were on base; true?

4   A.   That's correct.

5   Q.   You did have monthly averages; correct?

6   A.   That's correct.

7   Q.   And I think you'll agree. There's

8   nothing wrong with using monthly averages to

9   calculate exposure; true?

10   MS. SILVERSTEIN: Object to form.

11   THE WITNESS: I would agree.

12   BY MR. SNIDOW:

13   Q.   That's true even though the chemical

14   concentrations in the water vary from day to day?

15   A.   So in the real world, there will always

16   be exposure and variability -- uncertainty and

17   variability. And in exposure science, we use the

18   best information that we have available to us.

19   Q.   As far as you're aware, the best

20   information available here is expressed in average

21   concentration levels in a given month; true?

22   A.   That is the only information that I had

23   available to me.

24   Q.   In your report, am I correct that you

25   assumed that a plaintiff was there for the entire

 1   month if they were there for more than one day on

 2   base?

 3   A.   That's correct.

 4   Q.   You agree that's a reasonable way to do

 5   exposure estimations?

 6   A.   Yes. I believe it's reasonable given

 7   the information that I had.

 8   Q.   You used three models to estimate

 9   exposure; true?

10   A.   Are you being specific to Mr. Mousser?

11   Q.   Yeah, if you look at page 10, Section

12   2.1.

13   A.   Section 2.1 is longer. I'm asking

14   because the number of models vary by plaintiff.

15   Q.   Do you see under Section 2.1?

16   A.   In the first paragraph?

17   Q.   Yeah.

18   A.   I used three models, yes.

19   Q.   One was modeling dermal and inhalation;

20   true?

21   A.   Yes.

22   Q.   One was modeling oral exposure; true?

23   A.   Correct.

24   Q.   Ad one was modeling air concentrations;

25   correct?

1   A.   Correct.

2   Q.   For the ingestion exposure, you looked

3   at finished drinking water?

4   A.   For ingestion exposure I used the ATSDR

5   data, which they purport to be for finished

6   drinking water.

7   Q.   That also includes water used in cooking

8   and drinking -- strike that.

9   That also includes water used in

10 cooking; correct?

11   A.   The estimates for intake for water

12 consumption, yes, include both direct and indirect

13 water consumption.

14   Q.   It also includes water ingested while

15 swimming?

16   A.   I don't believe Mr. Mousser swam, but I

17 would have to look at my table of contents.

18   Q.   I think you're correct on that. I'm

19 just asking what that portion of the model takes

20 into account.

21   A.   This model does not include swimming.

22   Q.   If you'll look at page 11, do you see

23 under Routes of Exposure, it says, "Ingestion, for

24 example, if drinking the finished water, using the

25 water for cooking, drinking small amounts of water

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1 during swimming."

2   A.   Right. So please notice that in the

3 sentence above or the phrase above, I say could

4 have included. So for those who swam, then I

5 would have considered what's called incidental

6 ingestion which occurs during swimming.

7   Ultimately, I did not include that. But

8 for Mr. Mousser, since he did not recall swimming,

9 that was not included for him.

10   Q.   Totally understood. I wasn't trying to

11 trick you. Just to clarify the record,

12 Mr. Mousser did not swim; correct?

13   A.   To my knowledge.

14   Q.   So for him, your ingestion model didn't

15 include any amount of water ingested during

16 swimming; true?

17   A.   That's correct.

18   Q.   But for a plaintiff who did swim, the

19 ingestion portion of the model would include water

20 ingested while swimming?

21   A.   No, it would not.

22   Q.   Why not?

23   A.   So there are different models to assess

24 direct ingestion of water and direct and indirect

25 ingestion of water versus incidental ingestion

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1   while swimming. Do you want the full explanation

2   here?

3   Q.   Yeah.

4   A.   So for the plaintiffs who did report

5   swimming, I used a model called the EPA swim

6   model. That model addresses potentially multiple

7   routes of exposure and including incidental

8   ingestion. I did an analysis of comparing

9   exposures while swimming from inhalation, from

10   dermal exposure and from incidental ingestion and

11   fully expecting that incidental ingestion would be

12   a very small component of the overall exposure

13   because we don't ingest that much water when we

14   swim.

15   When I performed those calculations I

16   found that, in fact, inhalation exposure was

17   orders of magnitude greater than dermal and

18   ingestion exposure. So I focused my attention on

19   inhalation exposure.

20   Q.   For inhalation exposure, that includes

21   volatilized chemicals inhaled while showering and

22   bathing?

23   A.   Correct.

24   Q.   I guess washing machine as well, but

25   that was pretty small.

1   A.   It includes washing machines for those

2 who either stated they had a machine or who were

3 unclear.

4   Q.   On page 13 of your Mousser report, do

5 you see where you say, "I reviewed the ATSDR's

6 estimated monthly mean concentration"?

7   A.   Correct.

8   Q.   Any reason why those numbers could not

9 be used in the work that you did?

10   MS. SILVERSTEIN: Object to form and

11 foundation.

12   THE WITNESS: If I felt they could not

13 be used, I would not use them.

14 BY MR. SNIDOW:

15   Q.   And you did use them?

16   A.   I did use them.

17   Q.   Any reason to think that there were

18 better estimates of concentrations elsewhere?

19   MS. SILVERSTEIN: Object to form and

20 foundation. Go ahead.

21   THE WITNESS: I did not identify any

22 other datasets that I could use.

23 BY MR. SNIDOW:

24   Q.   For dermal and inhalation exposure, you

25 used the shower model?

1   A.   That's correct.

2   Q.   For drinking water ingestion, you used

3   the -- did you say PHAST or PAST?

4   A.   I believe ATSDR pronounces it PHAST.

5   Q.   That's the model you used?

6   A.   Correct.

7   Q.   On page 15 of your report, in the full

8   paragraph before the bottom, you say, "These

9   estimates are generally expressed in units of

10   milligram chemical per kilogram body weight per

11   day or milligrams per kilograms per day."

12   Correct?

13   A.   I see that.

14   Q.   There you're referring to estimates of

15   exposure; true?

16   A.   That's correct.

17   Q.   And you say there that the estimates are

18   generally expressed in those units.

19   Are there other units that exposure can

20   be expressed in?

21   A.   As I mentioned before just as an

22   example, for blood lead it can be microgram per

23   liter. The short answer is yes.

24   Q.   Actually I was hoping for an example.

25   So blood lead we talked about. We talked about

```
 1   the air concentration, which is done in -- air
 2   exposure, excuse me, which is done in micrograms
 3   per meter cubed?
 4        A.   Can be; correct.
 5        Q.   Any other measures of exposure that you
 6   can think of?
 7        A.   Well, you mentioned two before.
 8        Q.   Which ones did I mention?
 9        A.   I believe you mentioned mass per
10   kilogram time and total mass.
11        Q.   And those are both measures of exposure?
12        A.   Yes.
13        Q.   We've been going an hour.  Do you want
14   to take a break?
15        A.   Yeah.  Thank you.
16        Q.   You're welcome.
17             THE VIDEOGRAPHER:  We are off the record
18   at 10:05 a.m.
19             (Recess from 10:05 a.m. to 10:18 a.m.)
20             THE VIDEOGRAPHER:  We are on the record
21   at 10:18.
22             MS. SILVERSTEIN:  I just want to note
23   for the record that Dr. Schumann, who is an expert
24   for the plaintiffs, has been on the Zoom this
25   morning.
```

```
 1              MR. SNIDOW:  Fair enough.  I guess we'll
 2    segue right into that.
 3    BY MR. SNIDOW:
 4         Q.   Dr. LaKind, am I correct that you were
 5    on Zoom during the deposition of Dr. Reynolds.
 6         A.   That's correct.
 7         Q.   What was the purpose of that?
 8              MS. SILVERSTEIN:  Objection.
 9    Dr. LaKind, to the extent that your answer
10    involves any conversations with the United States,
11    I'll instruct you not to answer.
12              THE WITNESS:  I'm not going to answer.
13    BY MR. SNIDOW:
14         Q.   Well, you can tell me why you thought
15    you were on.  Don't tell me what you talked about
16    with her.
17         A.   I think I was on at least partly because
18    I had never seen a deposition before.
19         Q.   Were you in communication -- don't tell
20    me what you said -- were you in communication with
21    anyone during that deposition?
22         A.   Yes.
23         Q.   Were you in communication with anyone
24    other than counsel?
25         A.   No.
```

1   Q.   When modeling exposure, you would agree

2 that it's preferable to have site-specific data;

3 true?

4   A.   That's correct.

5   Q.   I should show you. Go to page 16 of

6 your report.

7   MS. SILVERSTEIN: Is this the Mousser

8 report?

9   MR. SNIDOW: Yep. Nope. The Dyer

10 report.

11 BY MR. SNIDOW:

12   Q.   Go to Exhibit 1 and go to page 16.

13   In the first paragraph there, you say,

14 "Well supported site-specific data are generally

15 the preferred source of information for an

16 exposure assessment."

17   A.   That's correct.

18   Q.   What do you mean by site-specific data?

19   A.   I think it's very much what it sounds

20 like. So information specific to the location for

21 which you're assessing exposure, the individual or

22 the population for whom you're assessing exposure.

23   Q.   Information about what? Not an

24 exhaustive list. Is it information about chemical

25 concentrations, information about people's

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 1   behavior? What did you mean by that?

 2   MS. SILVERSTEIN: Object to form.

 3   THE WITNESS: Yes. It can include both

 4   of those things.

 5   BY MR. SNIDOW:

 6   Q.   Anything else?

 7   A.   Yes. So in addition to people's

 8   behavior, just general characteristics of people.

 9   Q.   You say at the end of the paragraph,

10   "Unfortunately, in studies of past exposures, it's

11   often the case that these kinds of data are not

12   available." Right?

13   A.   That's correct.

14   Q.   Is that why you relied upon default

15   values?

16   A.   I relied in part on default values and

17   that's correct.

18   Q.   That's the reason why you did that?

19   A.   Because I did not have site-specific and

20   plaintiff-specific information in certain cases,

21   yes.

22   Q.   I think you'll agree there's nothing

23   wrong with using default values when doing

24   exposure assessment; true?

25   MS. SILVERSTEIN: Object to form.

```
 1              THE WITNESS:  There's absolutely nothing
 2   wrong with it.  It's a common practice.
 3   BY MR. SNIDOW:
 4        Q.   In fact, sometimes you have to do it.
 5   There's no other way; true.
 6        A.   That's correct.
 7        Q.   Do you agree it would be unreasonable to
 8   expect someone to recall their exact water intake
 9   during their time on base?
10        A.   I do.
11        Q.   For the some of the default values, you
12   used the EPA Exposure Factor Handbook?
13        A.   That's correct.
14        Q.   That's a reliable source for obtaining
15   default values?
16        A.   In my view, it is.
17        Q.   Besides that handbook, are there other
18   reliable sources that you think provide default
19   values?
20              MS. SILVERSTEIN:  Object to form.
21              THE WITNESS:  Are you referring
22   specifically to this case and these plaintiffs?
23   BY MR. SNIDOW:
24        Q.   Let's start there.
25        A.   I think that the default information
```

1   that I needed for this case and these plaintiffs

2   were available either through the Exposure Factors

3   Handbook or through ATSDR.

4   Q.   Both of those are reliable sources for

5   default values?

6   A.   That's a question?

7   Q.   Yes.

8   A.   Yes, I believe they are.

9   Q.   Thank you. You agree that an essential

10 component of a risk assessment is an exposure

11 assessment; true?

12   A.   It is one of the four main components.

13   Q.   Another one is hazard assessment?

14   A.   Hazard identification, yes.

15   Q.   What are the other ones?

16   A.   Dose-response assessment and risk

17 characterization.

18   Q.   Here you performed only the exposure

19 assessment component; true?

20   A.   That's correct.

21   Q.   You did not view any analysis of

22 dose-response; correct?

23   A.   I did not.

24   Q.   I already asked about hazard

25 identification. You did not do any analysis --

```
 1   what was the last one?
 2        A.    Risk characterization.
 3        Q.    You didn't do that?
 4        A.    I did not.
 5        Q.    When doing an exposure assessment, you
 6   are supposed to estimate magnitude, frequency and
 7   duration of exposure; true?
 8        A.    I'm glossing over the "supposed to."
 9   Exposure assessment generally incorporates all of
10   those components.  I did not include them all in
11   my portion of the exposure assessment that I
12   conducted.
13        Q.    That was going to be my next question.
14   When doing an exposure assessment, there are four
15   parts -- excuse me -- three parts, magnitude,
16   frequency and duration; true?
17        A.    Sorry.  Those are three.
18        Q.    Yes.
19        A.    I thought you said four.
20        Q.    I know.  I did.  I'll try it again.
21              There are three parts of an exposure
22   assessment, magnitude, frequency and duration?
23        A.    So those are components of exposure
24   assessment.  I want to make sure that you're not
25   saying that that's all exposure assessment.
```

1   Q.   I'm not. Those are three components of

2 it?

3   A.   Those can be three components.

4   Q.   Here you only estimated magnitude?

5   A.   That's correct.

6   Q.   You did not estimate the frequency of

7 exposure?

8   A.   I want to fix my last answer. I did not

9 assess frequency, but as I mentioned before, for

10 the mess hall component, I included duration.

11   Q.   For?

12   A.   Duration over the course of one day,

13 just to be clear.

14   Q.   For anything other than the mess hall

15 exposure, did you estimate duration?

16   A.   I estimated exposure over 24 hours. So,

17 no. Beyond that, no.

18   Q.   We talked before -- I'm repeating

19 myself, but you'll see why. Your ultimate

20 estimate was expressed in terms of milligrams or

21 micrograms per kilogram-day; true?

22   A.   I used those units for all routes of

23 exposure, but for inhalation, I also included

24 microgram per meter cubed.

25   Q.   Let's focus on the microgram per

 1   kilogram-day for a moment. You told me before you

 2   didn't calculate total micrograms of cumulative

 3   exposure; true?

 4   A.   That's correct.

 5   Q.   Or any other measure of total mass;

 6   true?

 7   A.   Correct.

 8   Q.   You agree that's a valid measure of

 9   exposure; true?

10   A.   True.

11   Q.   You could have calculated total

12   micrograms of exposure; correct?

13   A.   I was capable of computing that, yes.

14   Q.   This is where I wanted to go. To do

15   that, you need to make assumptions about the

16   number of days on base and a person's body mass?

17   MS. SILVERSTEIN: Object to form.

18   THE WITNESS: No. Only for microgram

19   you don't require body mass. If you're following

20   it only in micrograms, then you're computing

21   micrograms over the course of the time exposed.

22   BY MR. SNIDOW:

23   Q.   No. I'm saying to convert your metric

24   or one of them, the microgram per kilogram-day

25   into micrograms, how would you do that?

 1   A.   I see what you're saying. So you would

 2   have to adjust for days and for body mass.

 3   Q.   That's it?

 4   A.   Correct.

 5   Q.   So if you assume number of days on base

 6   and knew someone's body mass, you could convert

 7   your metric of exposure into straight micrograms,

 8   milligrams, unit mass?

 9   A.   Correct.

10   Q.   You also mentioned you did not calculate

11   microgram/liter-months of exposure; correct?

12   A.   That's correct.

13   Q.   I'm going to call that microgram per

14   liter months. But you'll know what I mean.

15   Do you agree that's a measure of the

16   area under the curve?

17   MS. SILVERSTEIN: Object to form.

18   THE WITNESS: I'm not an epidemiologist,

19   so I believe that's falls outside an area that I

20   want to answer.

21   BY MR. SNIDOW:

22   Q.   Have you ever seen that kind of exposure

23   estimated?

24   A.   You mean have I seen those units used in

25   some paper or report?

```
 1       Q.    Yes.
 2       A.    I have.
 3       Q.    For risk assessment or something else?
 4       A.    Something else.
 5       Q.    What was it?
 6       A.    Epidemiology.
 7       Q.    Do you know at all what exposure metrics
 8    are used in the epidemiology that looks
 9    specifically at the Marines at Camp Lejeune?
10            MS. SILVERSTEIN:  Object to form and
11    foundation.
12            THE WITNESS:  I don't.
13    BY MR. SNIDOW:
14       Q.    Do you know what measure of exposure is
15    used in any of the studies looking at workers
16    exposed to any of the chemicals in their
17    occupations?
18            MS. SILVERSTEIN:  Object to form and
19    foundation.
20            THE WITNESS:  I'm sorry.  Are you asking
21    universally for any paper on any chemical on any
22    job?
23    BY MR. SNIDOW:
24       Q.    No.  I'm talking specifically about TCE,
25    PCE, benzene and vinyl chloride.  Are you aware
```

```
 1   that there are studies of occupational exposure to
 2   those chemicals?
 3        A.   Occupation for the Marines?
 4        Q.   Not the Marines.  Dry cleaners, factory
 5   workers.
 6        A.   I'm sorry.
 7        Q.   No problem.  You're aware that those
 8   studies exist?
 9        A.   I am.
10        Q.   Do you know what measure of exposure or
11   what measures of exposure are employed in those
12   studies?
13             MS. SILVERSTEIN:  Object to form and
14   foundation.
15             THE WITNESS:  No, I don't recall.
16   BY MR. SNIDOW:
17        Q.   Are you aware that there are
18   epidemiology studies looking at exposures via
19   water contamination events outside of Camp
20   Lejeune?
21             MS. SILVERSTEIN:  Object to form and
22   foundation.
23             THE WITNESS:  I'm sorry.  I'm struggling
24   with these -- can you say the question again?
25
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 1   BY MR. SNIDOW:
 2       Q.   I'm focusing on TCE, PCE, benzene and
 3   vinyl chloride.
 4       A.   Right.
 5       Q.   Those chemicals have been found to be
 6   present in locations other than Camp Lejeune.
 7   Yes?
 8       A.   I would assume that would be correct.
 9       Q.   Are you aware that there's epidemiology
10   looking at people exposed to those chemicals via
11   these other water contamination events?
12            MS. SILVERSTEIN:  Object to form and
13   foundation.
14            THE WITNESS:  I think I have to say I
15   don't know.
16   BY MR. SNIDOW:
17       Q.   And because you don't know, you don't
18   know what the units of exposure are in any of
19   those studies?
20            MS. SILVERSTEIN:  Object to form and
21   foundation.
22            THE WITNESS:  I do not.
23   BY MR. SNIDOW:
24       Q.   Assuming I'm right that they exist.  But
25   that's fine.
```

1   You used central tendency exposure and

2   reasonable maximum exposure measurements; true?

3   A.   So just to clarify, they're not

4   measurements. And for the -- go in order -- for

5   water ingestion, I reported central tendency,

6   reasonable maximum and what I viewed as a very

7   conservative value as well. So there were three

8   different reported estimates.

9   The shower model, for the barracks I

10   reported central tendency and reasonable maximum.

11   For the residential, I did that a little bit

12   differently. It's very complicated and I'm not

13   sure there's a direct comparison with RME and CTE,

14   but I used a shower duration that was considered

15   to be typical and one that was considered to be

16   conservative.

17   So in that sense, I think you could

18   probably have them correspond to something like

19   CTE and an RME. For the mess hall, I used what I

20   viewed to be pretty much a maximum. And I'm not

21   sure how to characterize the air concentration for

22   the swimming pool except to say that it was very

23   likely an overestimate. Yeah, I think that's

24   probably enough.

25   Q.   In your field, anything unusual about

1   using the CTE and RME?

2   A.   I would describe it as standard

3   practice.

4   Q.   You did not calculate exposure factors?

5   MS. SILVERSTEIN: Object to form.

6   THE WITNESS: So as noted in my report,

7   when estimating exposure for a single day, the

8   components that go into the exposure factor

9   essentially cancel out and the value becomes one.

10   So in an equation, it would appear as multiplying

11   by one. So I guess the answer is yes and no.

12   BY MR. SNIDOW:

13   Q.   Go to page 22 of the Dyer report, which

14   I think is Exhibit 1. Do you see at the top, it's

15   the paragraph bleeding over, there you describe

16   the equation for EF, which I think means exposure

17   factor?

18   A.   Correct.

19   Q.   And you note that you estimate exposures

20   for a single day. You do not consider frequency,

21   exposure duration or averaging time; correct?

22   A.   That's correct.

23   Q.   I assume that you're perfectly capable

24   of calculating each of those?

25   A.   I am.

 1   Q.   And you didn't do that because I assume
 2   you were not asked; is that true?
 3   A.   That's not true.
 4   Q.   Why didn't you do it? They trained you
 5   well on deps. Buy, yes, why didn't you do it?
 6   A.   So as I mentioned before, in order to
 7   obtain the information on these additional
 8   components, that would have required many more
 9   hours. And because I was working on my own, and
10   Dr. Bailey, it's my understanding that she had
11   staff. And so we agreed that she would address
12   those components.
13   Q.   If you were doing a risk assessment all
14   by yourself, you, yourself, of course, would
15   calculate each of these values?
16   A.   To be clear, are you asking about risk
17   assessment or exposure assessment?
18   Q.   Don't you have to do the exposure
19   assessment first?
20   A.   You do the exposure assessment as part
21   of risk assessment. I'm not so sure the order
22   matters.
23   Q.   You have to do it; true?
24   A.   For an exposure assessment then I would
25   include all of these if I were doing that

 1   independently.

 2   Q.   That would be a component of an ultimate

 3   risk assessment if you were doing it

 4   independently?

 5   A.   Correct, except that I would not do the

 6   risk assessment independently.

 7   Q.   Why is that?

 8   A.   So risk assessments generally require

 9   multiple areas of expertise, and there are very

10   few situations in which I would want to take on

11   the portion of the risk assessment that required

12   toxicological or epidemiological expertise since

13   I'm an expert in neither of those.

14   Q.   So when you are participating in a risk

15   assessment, what disciplines are involved?

16   A.   For me or for everyone?

17   Q.   On the team, I guess. Is that what you

18   were describing?

19   A.   Yeah. So as I mentioned before, it can

20   be pretty varied. It can include engineers,

21   geologists, hydrogeologists, toxicologists,

22   epidemiologists, exposure scientists,

23   statisticians. That's probably -- I'm sure there

24   are more.

25   Q.   And you are a trained toxicologist, of

 1   course?

 2   A.   I am not.

 3   Q.   No. We'll give you your CV in a moment.

 4   Do you think it would be appropriate for

 5   a toxicologist to perform a risk assessment

 6   without consulting other disciplines?

 7   A.   It depends on the risk assessment.

 8   Q.   In your experience, risk assessments are

 9   typically done with a team?

10   A.   In my experience, yes.

11   Q.   Go to page 26 of the Dyer report. Here

12   you are reporting the estimated mean

13   concentrations of the various chemicals at Hadnot

14   Point and Tarawa Terrace during the time periods

15   when Ms. Dyer was on base; true?

16   A.   That's correct.

17   Q.   And --

18   A.   Well, I would need a minute to confirm

19   that. Ms. Dyer had a fairly complicated history.

20   I would have to go back and look to see in this

21   case -- just a reminder, there were 25 plaintiffs,

22   so I did not memorize the details for all of them.

23   So I don't recall for Ms. Dyer if she stated that

24   she used -- there's a time period when she wasn't

25   on base, but used the swimming pool. You asked me

1   if this corresponded to times when she was -- did

2   you say living on base?

3   Q.   I did.

4   A.   So I'd have to check that.

5   Q.   So let me clarify. This is the overall

6   mean concentration of the various chemicals during

7   the months when Ms. Dyer might have been exposed

8   to the water at Camp Lejeune?

9   A.   When she might have been exposed via

10   drinking water and swimming pool exposure.

11   Q.   These are expressed in means which in

12   laymen terms is an average; true?

13   A.   Correct.

14   Q.   And am I correct if someone was on base

15   for ten months when the exposure was a hundred

16   micrograms per liter every month, the number you

17   would use here would be a hundred micrograms per

18   liter; correct?

19   MS. SILVERSTEIN: Object to form.

20   THE WITNESS: Say that again.

21   BY MR. SNIDOW:

22   Q.   If someone was on base for ten months

23   and every month the concentration was a hundred

24   micrograms per liter, the number you would report

25   here would be a hundred micrograms per liter?

1   A.   Correct.

2   Q.   And if someone was on base five months

3 when it was 50 micrograms per liter and five

4 months when it was 150 micrograms per liter, the

5 number would still be 100 microgram per liter?

6   A.   I assume so. Now you're asking --

7   Q.   Do you want a calculator?

8   A.   Is this a Hewlett Packard.

9   Q.   It's not. If it's five months at 50 --

10   A.   I'm sorry. In order to do calculations,

11 especially in this kind of setting, I would ask

12 you for pen and paper and a calculator, preferably

13 a Hewlett Packard. I will say that if you're

14 asking me generally what an average is, you can

15 sum up the values and then divide by the number of

16 values.

17   Q.   Let me abstract away for a second. When

18 you were creating this chart, it doesn't treat

19 spikey exposures differently than constant

20 exposures?

21   MS. SILVERSTEIN: Object to form.

22   THE WITNESS: An average is an average.

23 So whether the numbers were fairly constant or

24 were highly variable, it's still a calculation of

25 an average.

 1   BY MR. SNIDOW:

 2   Q.   Go to page 54 of the Dyer report. In

 3   this paragraph in the bullets, you are reporting

 4   the exposure estimates via various routes for

 5   Ms. Dyer; right?

 6   MS. SILVERSTEIN: Object to form.

 7   THE WITNESS: No. I'm reporting a

 8   single route.

 9   BY MR. SNIDOW:

10   Q.   Just water ingestion?

11   A.   Ingestion is the route, yes.

12   Q.   In the paragraph leading up to it, you

13   say this is the exposure for people residing in

14   Camp Lejeune during the time period that Ms. Dyer

15   was there who lived in a similar area and engaged

16   in similar activities; right?

17   A.   Correct.

18   Q.   You're framing it there in terms of

19   population; correct?

20   A.   That's correct.

21   Q.   Is that because that's what these models

22   are designed to do?

23   A.   No. That's not why.

24   Q.   Why isn't it?

25   A.   The model can estimate an exposure for a

 1   population or individual. For the same reason

 2   that I gave you earlier this morning, that because

 3   I don't have exact perfectly accurate information

 4   for Ms. Dyer, I did the best that I could to

 5   estimate exposure for people like Ms. Dyer who had

 6   similar behaviors on base at a similar time.

 7   Q.   Where have you seen these models used to

 8   estimate a particular individual's exposure?

 9   A.   These particular models?

10   Q.   Yes.

11   A.   I've seen this done in documents that

12   I've read online. I have not done them myself.

13   Q.   Let's go to Exhibit 5. This is the

14   invoice dated first of December 2024?

15   A.   Correct.

16   Q.   And in the memo you note that you had

17   calls with DOJ, Gradient, expert witnesses. Then

18   it goes on; right?

19   A.   Yes.

20   Q.   When you say Gradient, who do you mean?

21   A.   So that would have been Dr. Lisa Bailey,

22   and she has staff working with her. I don't

23   recall who was on the call.

24   Q.   You're aware that Dr. Goodman also works

25   at Gradient?

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 1        A.    I am.
 2        Q.    Would she have been on these calls?
 3        A.    She may have.  I did not mean to leave
 4   her out.
 5        Q.    It says expert witnesses.  Were those
 6   the witnesses that you listed for me before?
 7        A.    Some set or subset, yeah.
 8        Q.    I imagine no recollection at all of
 9   exactly who was on this call --
10        A.    No.
11        Q.    -- seven months ago or so?
12        A.    No.
13        Q.    If you look the very last line there, it
14   says address questions from Gradient on model
15   assumptions, and prepare draft slide for 6
16   December meeting.
17              Do you remember where that meeting took
18   place?
19        A.    Would have been Zoom.
20        Q.    Do you remember who attended?
21        A.    No.
22        Q.    Do you remember the purpose of the
23   meeting?
24        A.    Now, no.
25        Q.    Do you still have those slides?
```

```
 1        A.    Most likely.
 2              (LaKind Exhibit 6 was marked.)
 3   BY MR. SNIDOW:
 4        Q.    I'm going to mark as Exhibit 6 one of
 5   your invoices from 1 November 2023.  And just for
 6   the record, LaKind Exhibit 6 is, if we did this
 7   correctly, a subset of the composite exhibit.
 8              Do you see at the bottom it says you
 9   prepared risk assessment slides?
10        A.    Correct.
11        Q.    What was the nature of these slides?
12        A.    I have no idea.
13              MS. SILVERSTEIN:  Objection on the basis
14   of both privilege and possibly CMO 17.  Any slides
15   prepared by Dr. LaKind and billed to the United
16   States would have been for the purpose of
17   educating or discussing with either the United
18   States or other United States witnesses.
19   BY MR. SNIDOW:
20        Q.    Do you still have the slides?
21        A.    Most likely.
22        Q.    Would they be on a computer somewhere?
23        A.    Yes.
24        Q.    Well, they can be in hard copy.
25        A.    Fair enough.
```

 1   Q.   Who is SSP&A?

 2   A.   I'm sorry. Where are you looking at?

 3   (LaKind Exhibit 7 was marked.)

 4   BY MR. SNIDOW:

 5   Q.   I'll mark as Exhibit 7 an invoice from

 6   March 1, 2024. In the middle it says, call with

 7   DOJ, SSP&A. Were those the water modeling folks?

 8   A.   That must be the water modeling. I

 9   don't know the full name of the company.

10   Q.   I think I saw an earlier reference to

11   Papadopulos & Associates which makes me think

12   that's correct.

13   A.   I'm not sure.

14   (LaKind Exhibit 8 was marked.)

15   BY MR. SNIDOW:

16   Q.   Mark as Exhibit 8 an invoice from the

17   1st of May 2024. You'll see there in the memo

18   says, write memo on selection of decimal places

19   and EPCs.

20   A.   I see it.

21   Q.   What are EPCs?

22   A.   Exposure point concentrations.

23   Q.   What's that?

24   A.   Concentrations.

25   Q.   So like the water concentrations?

 1   A.   Correct.

 2   Q.   Why did you write a memo on the decimal

 3   places for it?

 4   MS. SILVERSTEIN: Objection.

 5   Dr. LaKind, I'll instruct you not to answer on the

 6   basis of privilege and possibly CMO 17.

 7   BY MR. SNIDOW:

 8   Q.   Why does the number of decimal places in

 9   the exposure point concentration matter to your

10   opinion?

11   MS. SILVERSTEIN: You can go ahead and

12   answer.

13   THE WITNESS: It matters because there

14   are -- I don't want to call them rules, but there

15   are guidelines for how we express data. And the

16   number of places after the decimal point gives an

17   indication of the accuracy of the number.

18   BY MR. SNIDOW:

19   Q.   Do you remember how many decimal places

20   you ended up using?

21   A.   I believe I used two, but I have to look

22   at my report.

23   Q.   You said that you met with Dr. Lipscomb.

24   A.   Can you define "met"?

25   Q.   Had a call with him or a Zoom.

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 1        A.    The timeframe that you're interested in?
 2              (LaKind Exhibit 9 was marked.)
 3   BY MR. SNIDOW:
 4        Q.    Mark as Exhibit 9 an invoice from
 5   November 1, 2024.  I assume that it's your
 6   practice when doing these invoices to have the
 7   memo summarize the previous billing period?
 8        A.    Yes.  That's my practice.
 9        Q.    So here this is summarizing, and I guess
10   it says this, this is what did you in October of
11   2024?
12        A.    Correct.
13        Q.    It says that you had a call with DOJ,
14   Gradient, Dr. Lipscomb, and it goes on; right?
15        A.    Correct.
16        Q.    Do you know, was that a Zoom call?
17        A.    Yes.
18        Q.    Do you know if you've ever met with
19   Dr. Lipscomb in person?
20        A.    So I'm not sure.  That was a workshop
21   many years ago.  I know he participated in some
22   form because he was on the resulting publication,
23   but I don't remember if he was there.
24        Q.    Was that before or after you were
25   retained in this case?
```

```
 1        A.   Well before; early 2000s.
 2        Q.   So you knew Dr. Lipscomb before you
 3   became involved in this case?
 4        A.   I was familiar with him.  I wouldn't say
 5   we know each other well.
 6        Q.   You have met him professionally?
 7        A.   Yes.
 8        Q.   And you also knew professionally
 9   Dr. Goodman -- you told me that before -- before
10   you were retained; true?
11        A.   Correct.
12        Q.   Any other experts involved in this case
13   who you had a preexisting professional
14   relationship with?
15        A.   I don't think so.
16             (LaKind Exhibit 10 was marked.)
17   BY MR. SNIDOW:
18        Q.   Dr. LaKind, I'm going to show you an
19   exhibit I'll mark as Exhibit 10, which is your CV.
20        A.   It's a portion of my CV.
21        Q.   Portion of your CV.  Fair enough.  If
22   you'll go to page 76, it states that you have gone
23   through litigation support training.
24        A.   Correct.
25        Q.   When was that?
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```
 1        A.    I want to say 1990 maybe, 1991, early in
 2   my career.
 3        Q.    Fair enough.  I'll just ask.  Any memory
 4   of what that entailed?
 5        A.    Yes.
 6        Q.    What did it entail?
 7        A.    So it was organized by the company I
 8   worked for, which was VA Engineering Science and
 9   Technology.  My recollection was that it lasted
10   for a week and that we -- I can't remember the
11   beginning part.  I remember the end because the
12   owner of the company had a connection with a judge
13   in Baltimore County.  So we went into the
14   courthouse.  And there was a judge there and mock
15   jury, and we were grilled.  I can't remember what
16   the subject was.
17        Q.    Fair enough.  Any litigation training
18   since early 1990s?
19        A.    Only...
20        Q.    From counsel.
21        A.    Yes.
22              MS. SILVERSTEIN:  J.J., it looks like
23   this is from the one of the reports.  Do you know
24   which report that is?
25              MR. SNIDOW:  No.
```

 1   MS. SILVERSTEIN: I'll just note that

 2   this is part of a report, and the remainder of the

 3   CV portion is not included.

 4   THE WITNESS: Are we done with this?

 5   MR. SNIDOW: No. I'm hoping I got lucky

 6   and pulled it from one of these. For the record,

 7   this is an excerpt of Exhibit 2, the Mousser

 8   report.

 9   BY MR. SNIDOW:

10   Q.   You in your career have provided

11   technical analysis for regulatory support?

12   A.   Correct.

13   Q.   What does that entail?

14   A.   So any regulation -- I shouldn't say

15   any. I'll say most regulations, particularly ones

16   developed by agencies like EPA, have a scientific

17   foundation. And on occasion I have been asked to

18   assist with the scientific underpinnings of the

19   regulations.

20   Q.   On behalf regulator or potentially

21   regulated companies?

22   A.   Definitely part of the regulated

23   companies. I'm trying to -- well, I provide

24   guidance for EPA as well. Yeah, I think it's fair

25   to say EPA as well. At least one of those

```
 1   instances was in the form of a committee, a review
 2   committee.  I think that would be appropriate.
 3        Q.   Besides the review committee for the
 4   EPA --
 5        A.   Correct.
 6        Q.   -- the remainder of the regulatory
 7   support you've provided has been on behalf of a
 8   company?
 9        A.   No.  Well, you're pushing my memory.  I
10   have done work for Health Canada and EPA.  Where
11   I'm struggling here is whether those were specific
12   regulations or broader scientific issues that
13   could be applied to regulations.  I can't
14   remember.
15        Q.   That's fair.  Let me ask it maybe the
16   other way.  About how many times have you provided
17   regulatory support on behalf of a potentially
18   regulated company?
19        A.   I've been doing this for 35 years.  I
20   can't remember.
21        Q.   More than 50?
22        A.   I don't know.
23        Q.   What work have you done with Julie
24   Goodman before this litigation?
25        A.   So she and I worked with -- I have to
```

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1 look at my rï¿½sumï¿½ to remember how many other
2 people, at least two other people, on a review of
3 ozone literature, and we -- I'm sorry. There was
4 one other. We also with one other person
5 organized and led a workshop on accountability.
6   Q.   On the ozone literature, was that on
7 behalf of a company?
8   A.   You know what? She may not have been on
9 that. I would need to see my rï¿½sumï¿½.
10   Q.   For which? The ozone?
11   A.   The ozone.
12   Q.   For the workshop on accountability, was
13 that on behalf a company?
14   A.   It was on behalf of a trade association.
15   Q.   Do you know which one?
16   A.   The American Petroleum Association.
17   Q.   What was the workshop on accountability
18 about?
19   A.   On accountability what one tries to
20 understand is once there is an action, say, a
21 regulation, it can be an action, that's designed
22 to, again as an example, reduce human exposure,
23 after that regulation action occurs, how do we
24 determine whether it was effective.
25   Q.   To the best of your memory, have you

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1 done any other work with Dr. Goodman besides the

2 accountability workshop and maybe review of ozone

3 literature?

4   A.   Now that I think about it, I don't --

5 anyway, we can check that. I don't think so.

6   Q.   Have you done work with Gradient before

7 you got involved in this litigation?

8   A.   So I don't remember, and the reason I

9 don't remember is because consultants sometimes

10 move around a bit. So I can't remember if people

11 who are there now were there when I worked with

12 them. I don't remember.

13   Q.   You have done work for the American

14 Petroleum Institute; true?

15   A.   Yes.

16   Q.   That is a trade association for energy

17 companies?

18   A.   Correct. I assume that's their scope.

19   Q.   And they've funded papers that you've

20 written?

21   A.   They've written research that resulted

22 in papers, yes.

23   Q.   When you are writing a paper where the

24 research has been funded by a trade association,

25 do you allow them to have input into the

 1   manuscript?

 2   A.   I do not. Specifically, I don't want to

 3   say a hundred percent of the time because I have

 4   to have my contracts in front of me. But the

 5   preponderance of the time, it's stated in my

 6   contract that they don't. We -- I say "we"

 7   because I often work in teams -- often offer them

 8   the courtesy of a look at the paper before it's

 9   submitted. On occasion they found an editorial

10   mistake, leaving out a word in a sentence. But

11   no, other than that, unless it's specifically

12   stated that someone from industry was involved,

13   they were not.

14   Q.   Why is that typically in your contracts?

15   A.   So that there's no influence.

16   Q.   What do you mean by influence?

17   A.   There have been industries that have

18   worked to predetermine the outcome of research

19   that they fund. And that doesn't interest me.

20   Q.   For that reason, you don't let them give

21   input into the content of the manuscript?

22   A.   Correct.

23   Q.   You've done work for the American

24   Chemistry Council?

25   A.   Correct.

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 1              (LaKind Exhibit 11 was marked.)
 2    BY MR. SNIDOW:
 3         Q.    I'll mark as Exhibit 11 a paper that you
 4    are the lead author on called "Factors affecting
 5    interpretation of national biomonitoring data from
 6    multiple countries:  BPA case study."
 7              That's you at the top there; right?
 8         A.    Correct.
 9         Q.    If you go to page 328, it says,
10    Dr. LaKind was supported by the Polycarbonate/BPA
11    Global Group of the American Chemistry Council;
12    correct?
13         A.    Correct.
14         Q.    American Chemistry Council I assume is a
15    trade group?
16         A.    Correct.
17         Q.    Then you call out specifically that the
18    American Chemistry Council was not involved in the
19    preparation or approval of the paper; right?
20         A.    Well, I don't see that, but that
21    sounds -- here it is.  Correct.
22         Q.    Why was that important for you to call
23    out?
24         A.    For the same reason that I gave you in
25    the previous question.
```

1   Q.   The possibility that allowing them to be

2 involved with the manuscript could lead to undue

3 influence?

4   A.   Yes. The perception of influence and

5 the other thing I should note is that every

6 journal that I've worked with that I can remember

7 requires a statement like this. If it's true,

8 obviously, requires a statement like this.

9   Q.   In other words, a statement saying that

10 they were not involved?

11   A.   Correct.

12   Q.   You can put that one aside. I'm not

13 going to walk through all of them, but fair to say

14 you've done research on multiple occasions funded

15 by the American Chemistry Council?

16   A.   Correct.

17   Q.   I assume each time you did not allow

18 them to be involved in preparing or approving the

19 manuscript?

20   A.   Correct, unless -- I think there was one

21 occasion where one of their staff was part of the

22 workshop and was on the paper. So then clearly

23 they would be involved.

24   Q.   Other than that?

25   A.   To the best of my memory, that would be

```
 1   true.
 2        Q.   You've done work for the pulp and paper
 3   industry?
 4        A.   Correct.
 5        Q.   Work for Colgate Palmolive regarding
 6   triclosan?
 7        A.   Correct.
 8        Q.   Triclosan is a chemical found in soaps
 9   and toothpaste?
10        A.   I believe that is past tense now.  I'm
11   fairly certain it is not anymore.
12        Q.   Had you ever published a paper saying
13   that a chemical caused a certain disease?
14             MS. SILVERSTEIN:  Object to form.
15             THE WITNESS:  I don't believe so.
16   BY MR. SNIDOW:
17        Q.   You're not an expert in kidney cancer?
18        A.   I am not.
19        Q.   Or bladder cancer, Parkinson's disease,
20   leukemia or NHL; true?
21        A.   That's correct.
22        Q.   You're not an expert in carcinogenesis?
23        A.   Correct.
24        Q.   You're not a cancer epidemiologist?
25        A.   I am not.
```

```
 1        Q.    Of course, you're not a medical doctor?
 2        A.    I am not.
 3        Q.    Are you an expert in evaluating animal
 4   studies?
 5              MS. SILVERSTEIN:  Object to form.
 6              THE WITNESS:  No.  For the purposes of
 7   this, no.
 8   BY MR. SNIDOW:
 9        Q.    And you've never conducted an animal
10   study?
11        A.    Are we including humans?
12        Q.    I wasn't.  Have you ever conducted a
13   nonhuman animal study?
14        A.    I have not.  Yes, I have.
15        Q.    When was that?
16        A.    In college I did I think it was a
17   pesticide study on copepods, marine organisms.
18        Q.    Besides that, no?
19        A.    No.
20        Q.    Ever been a primary investigator for a
21   clinical trial?
22        A.    No.
23        Q.    For an epidemiology study?
24        A.    No.
25        Q.    Have you ever served on a IARC advisory
```

```
 1   panel for carcinogens?
 2        A.   No.
 3        Q.   Or for any other regulatory body?
 4        A.   Have I served on a panel for any
 5   regulatory body?
 6        Q.   An advisory panel for carcinogens on
 7   behalf any regulatory body.
 8        A.   No.
 9        Q.   Have you published on any of the five
10   diseases at issue here?
11             MS. SILVERSTEIN:  Object to form.
12             THE WITNESS:  I don't believe so.
13   BY MR. SNIDOW:
14        Q.   Have you published on any of the
15   chemicals at issue here?
16             MS. SILVERSTEIN:  Object to form.
17             THE WITNESS:  Yes.
18   BY MR. SNIDOW:
19        Q.   Which ones?
20        A.   I would need to go back and look at the
21   paper.  I believe that our research on
22   methodological issues for sample collection and
23   analysis of volatile organic chemicals in breast
24   milk may have included TCE.  And I don't remember.
25   It was a list, and I don't remember now which ones
```

```
 1    we looked at.  And to answer your question more
 2    fully, I would have to have my full CV in front of
 3    me.
 4               (LaKind Exhibit 12 was marked.)
 5    BY MR. SNIDOW:
 6        Q.    I'm going to mark as Exhibit 12 a, I
 7    believe, presentation that you did called "VOCs in
 8    Human Milk:  A Methodologic Pilot Study."
 9               Is this what you were just referring to
10    just now?
11        A.    Yes.
12        Q.    That's, of course, your name at the top
13    right there?
14        A.    Yes.
15        Q.    VOCs means volatile organic chemicals?
16        A.    Chemicals or compounds.
17        Q.    This is just a vocabulary thing right
18    now.  The term VOCs does include TCE, PCE, benzene
19    and vinyl chloride?
20        A.    Correct.
21        Q.    If you'll turn to the second slide, it
22    says, "Why measure exposure to VOCs?"  It says,
23    "VOCs have been linked to health effects in humans
24    and animals."  Correct?
25        A.    Correct.
```

 1   Q.   You agree with that statement, of

 2   course?

 3   MS. SILVERSTEIN: Object to foundation.

 4   THE WITNESS: Correct.

 5   BY MR. SNIDOW:

 6   Q.   Then you list the health effects that

 7   volatile organic chemicals or compounds is linked

 8   to, and one of them is cancer; true?

 9   A.   Correct.

10   Q.   And one of them is central nervous

11   system effects, I guess?

12   A.   Correct.

13   Q.   Do you agree that's true as well, VOCs

14   have been linked to both cancer and diseases of

15   the central nervous system?

16   MS. SILVERSTEIN: Object to foundation.

17   THE WITNESS: Be very careful that we're

18   agreeing on the word linked because that includes

19   any level of exposure. And link is not the same

20   as causality, just to be clear.

21   BY MR. SNIDOW:

22   Q.   Of course. But you agree associations

23   have been observed between VOCs and the diseases

24   that you list here?

25   MS. SILVERSTEIN: Object to foundation.

```
 1              THE WITNESS:  Well, when I wrote this, I
 2    clearly did.  And I haven't looked at it since.
 3    So that was my opinion in probably around 2008.
 4    BY MR. SNIDOW:
 5         Q.    Besides this paper, any other
 6    publications on any of the chemicals at issue?
 7         A.    Here's where I would have to look at my
 8    list of peer-reviewed publications.  It's not been
 9    my major area of focus.
10         Q.    You can put this aside.  Have you ever
11    published a Bradford Hill analysis?
12         A.    I have published papers, I believe,
13    where Brad hill was described, but a formal
14    point-by-point assessment, I don't remember if we
15    went through all of them.  I don't remember.
16         Q.    Fair enough.  You're not offering an
17    opinion about what caused, for example, Ms. Dyer's
18    illness, are you?
19         A.    I am not.
20         Q.    Same answer for all the 25 plaintiffs;
21    true?
22         A.    That's correct.
23         Q.    No opinion on whether the water at Camp
24    Lejeune caused their illness; true?
25         A.    That's correct.
```

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1   Q.   No opinion on whether the water at Camp

2 Lejeune played a role in their illness; right?

3   A.   Correct.

4   Q.   No opinion on whether the water at Camp

5 Lejeune is capable of causing any of the illnesses

6 at issue?

7   A.   Correct.

8   Q.   You have a position as an adjunct

9 associate professor in the department of

10 epidemiology?

11   A.   And public health.

12   Q.   And public health. Do you teach

13 epidemiology?

14   A.   I want to be as accurate as possible. I

15 have taught risk assessment, and high level

16 concepts around epidemiology have been part of

17 that course.

18   Q.   Do you hold yourself out as an

19 epidemiologist?

20   A.   I do not.

21   Q.   Do you consider yourself an expert in

22 epidemiology?

23   A.   I do not.

24   Q.   And you did not review any of the

25 epidemiology here?

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1   MS. SILVERSTEIN: Object to form.

2   THE WITNESS: For Camp Lejeune? I can't

3   say for sure that I have I didn't look at a paper

4   during the course of the two years of doing this

5   work, but I don't remember.

6   BY MR. SNIDOW:

7   Q.   Fair to say you did not do a systematic

8   review of the epidemiology here?

9   A.   I didn't.

10   Q.   When doing a risk assessment, the

11   ultimate output is the increased probability of a

12   certain illness?

13   MS. SILVERSTEIN: Object to form and

14   foundation.

15   THE WITNESS: That's incorrect.

16   BY MR. SNIDOW:

17   Q.   How would you put it?

18   A.   For carcinogens and the value that one

19   produces does reflect an increase over background

20   probabilitistic value. I'm not saying this well.

21   I'm getting close to needing a break.

22   But for noncancer outcomes, it's --

23   there's no probabilistic component to it.

24   Q.   How are those expressed for noncancer

25   outcomes?

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1   A.   They're expressed either as a hazard

2 index or a hazard quotient. A value above one --

3 I'm going to say it a different way. A value

4 below one indicates no appreciable likelihood of

5 developing an adverse health effect over the

6 course of a lifetime with recognized uncertainty

7 around an order of magnitude. The hazard

8 quotients are very similar, but it's for multiple

9 chemicals and pathways.

10   Q.   Focusing on cancers for a moment the

11 ultimate output could be expressed as one

12 additional cancer in a million above background?

13   MS. SILVERSTEIN: Object to form.

14   THE WITNESS: That would be an example.

15 BY MR. SNIDOW:

16   Q.   Or one in 10,000?

17   MS. SILVERSTEIN: Object to form.

18   THE WITNESS: That would be another

19 example.

20 BY MR. SNIDOW:

21   Q.   Risk assessments don't produce relative

22 risk ratios?

23   A.   I've never seen that.

24   Q.   Do you want to take a break?

25   A.   I do.

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1   Q.   By the way, you can ask any time.

2   A.   Thank you.

3   THE VIDEOGRAPHER: We are off the record

4 at 11:12.

5   (Recess from 11:12 a.m. to 11:27 a.m.)

6   THE WITNESS: We are on the record at

7 11:27.

8 BY MR. SNIDOW:

9   Q.   Dr. LaKind, before the break, we were

10 talking about the fact that risk assessments for

11 cancers produce a result expressed in terms of

12 increased probability over background. Yes?

13   A.   Correct.

14   Q.   And we said that could be one in a

15 million, one in a thousand.

16   My question is: Is there a number above

17 which it's sufficient to say a substance caused a

18 disease?

19   MS. SILVERSTEIN: Object to form and

20 foundation.

21   THE WITNESS: No. A risk assessment

22 is -- that's not what a risk assessment is.

23 BY MR. SNIDOW:

24   Q.   Tell me more about that.

25   A.   What exactly do you want to know?

1   Q.   When you say risk assessment doesn't do
2   that, what do you mean by that?
3   A.   So risk assessment can be used as part
4   of an understanding of causation, but in and of
5   itself, it's not -- in my experience, it's not
6   used for a causality assessment.
7   Q.   So there's no -- you've never seen it
8   published where if the risk is above one in
9   10,000, you say that can be causal. If it's below
10 that, you say it couldn't be causal?
11   MS. SILVERSTEIN: Object to form and
12 foundation.
13   THE WITNESS: In my experience, that's
14 not the language that's used.
15 BY MR. SNIDOW:
16   Q.   Have you ever --
17   A.   Hang on. I want to amend that. Because
18 you said above and below, didn't you, in your
19 question?
20   Q.   No. I think I just said above.
21   A.   You just said above?
22   Q.   Yeah.
23   A.   Then never mind.
24   Q.   Is there a number above which you can
25 consider something to be a risk factor for a

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1   certain disease?

2   MS. SILVERSTEIN: Object to form and

3   foundation.

4   THE WITNESS: I mean, with all due

5   respect, I'm not sure that question makes sense.

6   BY MR. SNIDOW:

7   Q.   Fair enough. Let's say you to a risk

8   assessment and you say that it comes out that the

9   risk is 1 in a thousand. Is that high enough to

10 rule in the exposure at issue as a risk factor for

11 a certain disease?

12   MS. SILVERSTEIN: Object to form and

13 foundation.

14   THE WITNESS: Your language is

15 confusing. This is -- the risk calculation is a

16 description of the probabilistic increase or

17 likelihood of the risk of cancer above background

18 in a given population. It's just different

19 language I think than what you're using.

20 BY MR. SNIDOW:

21   Q.   Have you ever seen a peer-reviewed paper

22 uses a risk assessment to calculate an individual

23 person's risk of getting a disease?

24   A.   No.

25   Q.   Have you ever seen a risk assessment

```
 1   used to prove causation in the peer-reviewed
 2   literature?
 3        A.   In and of itself?
 4        Q.   Um-hum.
 5        A.   No.
 6        Q.   Do you agree that risk assessments and
 7   epidemiology have different purposes?
 8             MS. SILVERSTEIN:  Object to form and
 9   foundation.
10             THE WITNESS:  They're both used for all
11   different kinds of purposes, and there is overlap.
12   BY MR. SNIDOW:
13        Q.   Are you familiar with MoE, margin of
14   exposure?
15        A.   I am.
16        Q.   Have you ever seen margin of exposure
17   analysis employed in the context of cancer?
18             MS. SILVERSTEIN:  Object to form and
19   foundation.
20             THE WITNESS:  So other than in this
21   case, I don't remember.  I don't remember.
22   BY MR. SNIDOW:
23        Q.   Sitting here right now, and I'll break
24   it down.  You know it's employed in this case
25   because I assume you've seen Dr. Bailey's reports.
```

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 1    Yes?
 2         A.   Correct.
 3         Q.   And you know that she performs an MoE
 4    analysis for cancers; correct?
 5         A.   Correct.
 6         Q.   But as you sit here right now, you can't
 7    recall ever seeing that done anywhere else other
 8    than in Dr. Bailey's reports?
 9              MS. SILVERSTEIN:  Object to form.
10              THE WITNESS:  I don't remember.
11    BY MR. SNIDOW:
12         Q.   You can't recall that; right?
13         A.   I can't recall.
14         Q.   You know that Dr. Bailey does do a risk
15    assessment for individuals in her reports; right?
16         A.   I don't remember exactly how she worded
17    it.
18         Q.   Have you ever, aside from Dr. Bailey's
19    reports, ever seen someone use risk assessment to
20    calculate an individual's risk of getting cancer?
21         A.   So as I mentioned before, I've seen
22    documents online that focus on risk assessment for
23    individuals.
24         Q.   They actually perform the calculation?
25         A.   I don't remember.
```

1   Q.   Do you know what documents you saw?

2   A.   They were either EPA or ATSDR.

3   Q.   Had you ever seen a risk assessment in

4   the peer-reviewed literature used to disprove

5   causation?

6   MS. SILVERSTEIN: Object to form and

7   foundation.

8   THE WITNESS: No.

9   BY MR. SNIDOW:

10   Q.   Have you outside of Dr. Bailey's reports

11   ever seen a risk assessment used to disprove

12   causation?

13   MS. SILVERSTEIN: Object to form and

14   foundation.

15   THE WITNESS: I don't know that's what

16   Dr. Bailey did.

17   BY MR. SNIDOW:

18   Q.   Fair enough. So the answer is no I

19   guess; right?

20   A.   You'd have to say the whole question

21   again so I know what the "no" is applying to.

22   Q.   Put aside Dr. Bailey's reports for a

23   moment. Have you ever seen a risk assessment used

24   to disprove causation?

25   MS. SILVERSTEIN: Object to form and

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 1   foundation.

 2   THE WITNESS: I don't know how to prove

 3   a negative. The answer I guess would be no.

 4   BY MR. SNIDOW:

 5   Q.   Have you ever seen an MoE analysis used

 6   to disprove causation?

 7   A.   No, I don't think as to function.

 8   Anyway, no.

 9   Q.   Do you agree that risk assessments are

10   typically done for populations?

11   MS. SILVERSTEIN: Object to form and

12   foundation.

13   THE WITNESS: I'm going to base my

14   answer on my personal professional experience. In

15   my experience, they generally have not been done

16   for an individual.

17   BY MR. SNIDOW:

18   Q.   Put it the other way. They're usually

19   done for populations?

20   A.   In my experience.

21   Q.   You, yourself, have never calculated an

22   individual's risk of getting a disease using what

23   risk assessment, have you?

24   A.   I have not.

25   Q.   You, yourself, have never calculated an

1 MoE for an individual person, have you?

2   A.   I have not.

3   Q.   I might have asked you this, so

4 apologies. You've never even seen MoEs used at a

5 population level for cancer risks?

6   A.   No, I don't believe I have.

7   Q.   In an ideal world, when doing an

8 exposure assessment, you would have directly

9 measured values of the contaminant concentrations?

10   A.   So I think it's important to understand

11 that both model values and measured values have

12 their own sets of uncertainties and impacts

13 associated with variability. Personally in my

14 professional experience, I think it's a good thing

15 to have some measurements at least as a guide.

16   Q.   Here we don't have very many

17 measurements of direct measurements of the

18 chemicals in the water at Camp Lejeune from 1953

19 to 1987; right?

20   A.   Based on what I've read, that's my

21 understanding.

22   Q.   Because of that, no choice for you but

23 to rely upon the water modeling; correct?

24   MS. SILVERSTEIN: Object to form.

25   THE WITNESS: I relied on the water

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 1 modeling because it was the only comprehensive

 2 dataset that I located.

 3 BY MR. SNIDOW:

 4   Q.   And DOJ actually asked you to rely on

 5 ATSDR's mean monthly chemical concentration data

 6 for estimating exposures at Camp Lejeune; right?

 7   A.   Right. So to be clear, I want to make

 8 the distinction between asking and requiring. So,

 9 yes, they thought that that would be a useful

10 dataset for me.

11   Q.   And you agreed?

12   A.   I did.

13   Q.   At no point did you say this water

14 modeling is too unreliable to use for an exposure

15 assessment, did you?

16   MS. SILVERSTEIN: Objection.

17 Dr. LaKind, to the extent your answer requires you

18 to discuss any conversations you had with counsel,

19 I'll instruct you not to answer on the basis of

20 privilege.

21   THE WITNESS: I won't answer.

22 BY MR. SNIDOW:

23   Q.   At no point did you think to yourself

24 this data is too unreliable to use for an exposure

25 assessment?

 1   MS. SILVERSTEIN: Object to form and

 2   foundation.

 3   THE WITNESS: I did not.

 4   BY MR. SNIDOW:

 5   Q.   Do you agree modeling is often the only

 6   way that you can get information needed to conduct

 7   an exposure assessment?

 8   MS. SILVERSTEIN: Object to form.

 9   THE WITNESS: I would say that's

10   reasonable.

11   BY MR. SNIDOW:

12   Q.   In your report you say the

13   ATSDR -- strike that.

14   In your report, you say that using ATSDR

15   data is a conservative approach. Yes?

16   A.   Can you show me in the report?

17   Q.   Yeah. Exhibit 1 at page 28.

18   A.   Are you referring to the last sentence?

19   Q.   Yep.

20   A.   Can you ask your question again?

21   Q.   I think it was you describe using ATSDR

22   data as a conservative approach.

23   A.   What I state specifically is, "Based on

24   the expert opinion of Dr. Spilotopoulos, using the

25   concentrations would result in a conservative

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1   estimate," yes.

2   Q.   That was my next question. You don't

3   have an independent opinion on whether that's

4   true?

5   A.   I do not.

6   Q.   You don't have an independent opinion on

7   evaporative losses; true?

8   A.   Not specific to this database. In

9   general, they're called volatile organic compounds

10 because they volatilize. And so they would tend

11 to -- some portion of them would tend to leave the

12 water and enter the air. So just in terms of

13 physical chemical properties, it makes sense. So

14 I have an opinion about that. In terms of the

15 extent of evaporative loss model by

16 Dr. Spilotopoulos, no, I don't have an opinion on

17 that.

18   Q.   To put it concretely, you don't have an

19 opinion on the quantitative extent of the

20 volatilization?

21   A.   I do not.

22   Q.   For air concentrations, there were not

23 any measurements taken during 1953 to 1987;

24 correct?

25   MS. SILVERSTEIN: Object to form.

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 1   THE WITNESS: I was not able to find

 2   any.

 3   BY MR. SNIDOW:

 4   Q.   So all of those measurements are based

 5   on model data?

 6   A.   All of those concentrations are based on

 7   model data.

 8   Q.   Nothing wrong with using model data in

 9   that capacity; right?

10   MS. SILVERSTEIN: Object to form.

11   THE WITNESS: Not in my view.

12   BY MR. SNIDOW:

13   Q.   In your words, can you tell me what

14   margin of exposure means?

15   A.   So let me start by saying that I did not

16   do a risk assessment or a margin of exposure

17   assessment. And it's been a while since I've

18   reviewed some of these concepts. But in a margin

19   of exposure, my understanding of it is that it's

20   the ratio of the exposure to a toxic potency

21   factor or to be more specific, a point of

22   departure in the toxic potency factor.

23   Q.   You agree the point of departure is

24   often defined as an absolute increased risk above

25   background of 1 percent?

 1   MS. SILVERSTEIN: Object to form and

 2   foundation.

 3   THE WITNESS: I don't think that's

 4   correct.

 5   BY MR. SNIDOW:

 6   Q.   What do you think it's usually defined

 7   at?

 8   MS. SILVERSTEIN: Objection.

 9   Foundation.

10   THE WITNESS: So I think what I'm going

11   to say is that this involves fairly complex

12   dose-response modeling, which is outside my area

13   of expertise.

14   BY MR. SNIDOW:

15   Q.   Fair enough. Have you ever seen a

16   publication saying if the MoE is less than 1, that

17   means the population is not at an increased risk?

18   MS. SILVERSTEIN: Object to form and

19   foundation.

20   THE WITNESS: I'm struggling with your

21   language because, again, in at least noncancer

22   assessments, we don't really talk about risk. I

23   believe that I have seen definitions describing

24   the value of 1 as the cutoff. But once again, I

25   would say that we're pushing into areas that are

 1   outside of my area.

 2   BY MR. SNIDOW:

 3   Q.   Do you agree that risk assessments rely

 4   upon theoretical assumptions about the shape of

 5   the dose-response curve?

 6   MS. SILVERSTEIN: Object to form and

 7   foundation.

 8   THE WITNESS: Again, you're asking me

 9   about complex modeling of dose-response.   So I

10   would that's outside of my area.

11   BY MR. SNIDOW:

12   Q.   You did not do any modeling yourself of

13   the dose-response curves for any of these

14   chemicals?

15   A.   I have not.

16   (LaKind Exhibit 13 was marked.)

17   BY MR. SNIDOW:

18   Q.   I'll show you a document that I'll mark

19   as Exhibit 13.   This is a slide presentation that

20   I think you created.   Yes?

21   A.   Looks familiar.

22   Q.   If you go to page 38, it's kind of gray,

23   do you see at the top where it says "Risk

24   Assessors want to use epidemiology data"?

25   A.   Correct.

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```
 1        Q.    Why is that?
 2        A.    Risk assessors generally would like to
 3   be able to use any scientific information that
 4   would help them have a strong foundation for their
 5   methodology.
 6        Q.    And how do risk assessors use
 7   epidemiology data?
 8             MS. SILVERSTEIN:  Object to form and
 9   foundation.
10             THE WITNESS:  Risk assessors can use
11   epidemiology data to understand human exposures as
12   one example.
13   BY MR. SNIDOW:
14        Q.    And to model dose-response curve?
15             MS. SILVERSTEIN:  Object to form and
16   foundation.
17             THE WITNESS:  I believe that's been
18   done.
19   BY MR. SNIDOW:
20        Q.    If you look at the disclaimer.
21        A.    Yes.
22             MS. SILVERSTEIN:  I just want to note
23   that this appears to be an excerpt of the
24   presentation and not the entire presentation.
25             MR. SNIDOW:  Fair enough.
```

```
 1   BY MR. SNIDOW:
 2        Q.   Do you see that diagram there that
 3   you've drawn?
 4        A.   Yes.
 5        Q.   I think you're trying to show how
 6   confounding works.
 7        A.   So do you remember the year that I gave
 8   this talk?
 9        Q.   2023.
10        A.   So it's a couple of years ago, and I may
11   have been showing where exposure sits in the
12   relationship between these three components.  But
13   I've given many talks, and I don't remember
14   exactly what I was trying to show here.
15        Q.   I guess put aside what you were trying
16   to do.  Do you agree that to be a confounder, the
17   variable needs to be associated both with the
18   exposure and the outcome?
19        A.   Agree.
20             MS. SILVERSTEIN:  Object to foundation.
21             THE WITNESS:  I agree.
22   BY MR. SNIDOW:
23        Q.   To put it another way, if the variable
24   is associated only with the outcome, but not the
25   exposure, it can't be a confounder?
```

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 1            MS. SILVERSTEIN:  Object to form and
 2   foundation.
 3            THE WITNESS:  So first I'll remind you
 4   that I'm not an epidemiologist.  But that's my
 5   understanding of what a confounder -- how it
 6   functions.
 7   BY MR. SNIDOW:
 8       Q.   Thank you.  If you will look at this
 9   page (indicating).
10            MS. SILVERSTEIN:  What page is that?
11            MR. SNIDOW:  It doesn't have a page
12   number bizarrely, but it's the third slide.
13            MS. SILVERSTEIN:  Is that the disclaimer
14   page?
15            MR. SNIDOW:  Yes.
16   BY MR. SNIDOW:
17       Q.   Do you see where it says exposure
18   assessment there?
19       A.   Yes.
20       Q.   It says, how much of the pollutant are
21   people exposed to during a specific time period
22   and then how many people are exposed; right?
23       A.   That's correct.
24       Q.   What are the different ways of
25   determining how much of a pollutant people were
```

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1   exposed to during a specific time period?

2   A.   I'll start by saying this is a graphic

3   that I believe was developed by EPA. You're

4   asking how many ways. There are numerous ways.

5   They fall under the general categories of direct

6   and indirect I guess that's fair to say. In

7   direct we have various ways of measuring exposure,

8   including community air monitors, personal air

9   monitoring. We have biomonitoring. And in

10 indirect we have various many types of models that

11 we use.

12   Q.   I think I understand the direct. Can

13 you give me some examples on the indirect of how

14 that's done?

15   A.   So one example would be proximity to

16 roadway. If you want to understand how traffic

17 impacts people and you don't have sufficient

18 monitoring data, people use estimates based on how

19 close they are to the roadway.

20   Q.   Anything wrong with using that kind of

21 exposure assessment?

22   A.   There's nothing wrong with it. It has

23 to be the right kind of approach for the question

24 that you want to answer.

25   Q.   In the situation you're describing, the

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 1   researcher, if I'm understanding correctly, they
 2   don't have direct measure of how much of pollution
 3   from automobiles someone is exposed to.  So they
 4   look at proximity to roadway as a sort of proxy?
 5            MS. SILVERSTEIN:  Object to form
 6   foundation.  I was slow on that one.
 7            THE WITNESS:  That can be an approach.
 8   BY MR. SNIDOW:
 9        Q.   That is perhaps not common, but that is
10   something that's done in your field, is using a
11   proxy when you don't have direct exposure data; is
12   that fair?
13        A.   So common implies, I don't know, greater
14   than some percentage.  I can't comment on how
15   often proxies are used.
16        Q.   But you've seen it done?
17        A.   Yes.
18        Q.   To calculate -- to estimate exposure?
19        A.   Yes.  In that case, it might be to
20   estimate relative exposure.
21        Q.   Is it reasonable to use proxies when
22   doing an exposure assessment?
23            MS. SILVERSTEIN:  Object to form and
24   foundation.
25            THE WITNESS:  Right.  I think we just
```

1   discussed that. It's done frequently and is an
2   accepted practice, as long as it's the right proxy
3   for the right question.
4   BY MR. SNIDOW:
5   Q.   Sure. I'm not trying to hide the ball.
6   Obviously, if you have direct exposure data,
7   that's typically used, but sometimes you don't;
8   right?
9   A.   It's typically used if it's of
10 sufficient quality and quantity.
11   Q.   You agree here we do not have what
12 you're characterizing as direct exposure
13 measurements for the people at Camp Lejeune?
14   A.   We don't have direct measurements to my
15 knowledge for air, for swimming pool water and
16 even for finished water.
17   Q.   Yeah. There's no exposures that we do
18 have direct exposure data for?
19   A.   Based on my examination of the available
20 information, there is insufficient measurement
21 data to use for my exposure assessments.
22   Q.   You have employed the
23 weight-of-the-evidence approach in your work?
24   A.   I have.
25   Q.   Do you agree that approach requires

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 1 scientific judgment?

 2   A.   Yes, I do.

 3   Q.   When doing a weight-of-the-evidence

 4 approach you would, of course, want to read all

 5 the evidence available?

 6   A.   It's very helpful to do that.

 7   Q.   You wouldn't just defer to another

 8 expert's review of the literature, would you?

 9   MS. SILVERSTEIN: Object to form and

10 foundation.

11   THE WITNESS: No. Then there would be

12 no point in doing it. Having said that, let me

13 add one piece to that. There's something that I

14 believe -- I may have the term wrong, but I

15 believe it's called an umbrella review. We refer

16 to it as a review of reviews. And you can

17 examine -- it's often the case that more than one

18 group does a review, weight-of-evidence or a

19 systematic review, and it's perfectly reasonable

20 to review to reviews and to get an understanding

21 of what the preponderance of what the evidence is

22 showing in those.

23 BY MR. SNIDOW:

24   Q.   I think I know what you're saying.

25 Sometimes you might not have to read every

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 1    individual study if you read the kind of
 2    intermediate reviews; is that fair?
 3              MS. SILVERSTEIN:  Object to form.
 4              THE WITNESS:  Depends what your purpose
 5    is.
 6    BY MR. SNIDOW:
 7       Q.   Is that what you're trying to describe
 8    to me?
 9       A.   I'm trying to describe that to you in
10    the context of what is the scientific community
11    thinking about this and where are the strengths
12    and weaknesses in the literature and in the
13    reviews themselves.
14       Q.   But if you were going to decide if you
15    agreed with another scientist's conclusion after
16    performing a weight of the evidence approach,
17    you'd want to review either the underlying studies
18    or at a minimum the reviews?
19              MS. SILVERSTEIN:  Object to form and
20    foundation.
21              THE WITNESS:  I think that's true.
22              (LaKind Exhibit 14 was marked.)
23    BY MR. SNIDOW:
24       Q.   Thank you.  I'll show you Exhibit 14,
25    which is a paper that you're lead author on called
```

```
 1   Epidemiology for Risk Assessment.
 2            Do you remember this paper?
 3       A.   I do.
 4       Q.   It's from 2023.
 5       A.   Okay.
 6       Q.   Do you see the abstract there?  It says,
 7   "Epidemiology research plays an important role in
 8   regulatory risk assessments"?
 9       A.   I do.
10       Q.   And you agree with that?
11       A.   Yes.
12       Q.   If you look down in the Introduction, it
13   says -- there's a sentence that begins, "The World
14   Health Organization."
15            Do you see that?
16       A.   Yes.
17       Q.   It says, "The World Health Organization
18   has defined the weight of evidence as 'a process
19   in which all the evidence considered relevant for
20   a risk assessment is evaluated and weighed.'"
21       A.   Okay.
22       Q.   You've done that before; right?
23       A.   Yes.
24       Q.   Before doing that, you read -- you tried
25   to read as much of the underlying evidence as you
```

1   could find; correct?

2   A.   Yes, with the understanding that in a

3   weight-of-evidence assessment, there are often

4   papers that come from multiple disciplines, and

5   there's an acknowledgement that the person with

6   the most expertise in that discipline will have

7   the greatest responsibility for that collection of

8   literature.

9   Q.   Understood. But when doing the

10   weight-of-the-evidence, you certainly would try to

11   review papers that were within your discipline?

12   A.   Yes.

13   Q.   If you go to the right-hand column at

14   the very end, it says, "For dose-response

15   assessment, the quantitative relationship between

16   exposure and effect(s) is determined."

17   A.   I see it.

18   Q.   Do you agree that dose-response is

19   sometimes based on exposure measurements other

20   than milligrams per kilogram?

21   MS. SILVERSTEIN: Object to form.

22   THE WITNESS: Can you give me an

23   example?

24   BY MR. SNIDOW:

25   Q.   In the epidemiology, sometimes exposure

1   is not defined in milligrams per kilogram, but

2   authors still see there's a dose-response effect?

3   MS. SILVERSTEIN: Object to form and

4   foundation.

5   THE WITNESS: So here I think we're

6   referring since we're referring to regulatory risk

7   assessment, ultimately, we're going to need units

8   of milligram per kilogram day.   So I'm not sure

9   that's the answer to your question.   I think maybe

10 there's some conversion, but I'm moving outside of

11 my area.

12 BY MR. SNIDOW:

13   Q.   Just tell me.   I truly don't want to go

14 into areas you're not comfortable with.   If that

15 ever comes up again, just tell me.

16   If you will go to page 2, the first full

17 paragraph, you say, "Going forward, human

18 epidemiology research is playing an increasingly

19 important role in understanding and quantifying

20 relationships between chemical exposure and

21 adverse health outcomes."

22   A.   Okay.

23   Q.   Do you agree still with that?

24   A.   I do.

25   Q.   If you'll go to page --

1   A.   Can I give you at least a partial reason

2   why? There's an effort that's been under way for

3   at least a few years to minimize the use of

4   animals and animal testing. So we're relying on

5   humans. We have to rely on something. So human

6   data will become increasingly important.

7   Q.   If you go to page 9, there's a very long

8   paragraph begins, "This review." If you look sort

9   of in the middle, you'll see a sentence that

10 begins, "Further, the presence of a

11 dose-response."

12   A.   Yes.

13   Q.   It says, "Further, the presence of a

14 dose-response informs causal judgments as does the

15 reliability of the underlying data."

16   A.   I see it.

17   Q.   I want to focus on the first part. When

18 you say the presence of a dose-response informs

19 causal judgments, you mean when there's a dose

20 response that makes causation more likely?

21   MS. SILVERSTEIN: Object to form and

22 foundation.

23   THE WITNESS: I would have to go back

24 and read for context. I just don't remember the

25 one sentence in this overall paper and what we

```
 1   were trying to get at there.
 2   BY MR. SNIDOW:
 3       Q.   I guess put aside the paper.  Do you
 4   agree when there's a dose-response relationship,
 5   causation is more likely, all else equal?
 6            MS. SILVERSTEIN:  Object to form and
 7   foundation.
 8            THE WITNESS:  You're asking me to weigh
 9   in on the Bradford Hill criteria, and that's
10   outside my area.
11   BY MR. SNIDOW:
12       Q.   It sounds like you know a little bit.
13       A.   Just knowing a little bit doesn't make
14   me an expert.
15       Q.   That's fine.  Let's go to page 10, the
16   last sentence, "We hope that this publication can
17   contribute to bridging the epidemiology risk
18   assessment gap."
19            This is an area that you've written on
20   extensively; correct?
21       A.   Correct.
22       Q.   What do you mean by epidemiology risk
23   assessment gap?
24       A.   So we have two disciplines.  And while
25   we are -- it is my personal opinion and
```

1 professional, I think ultimately many of us are

2 trying to achieve the same goal of protection of

3 human health, but we are using different tools to

4 do that. And oftentimes, we don't I think do as

5 good a job as we can in talking to each other and

6 in making sure that we're designing our studies

7 and our tools so that they are advantageous to the

8 other discipline.

9   Q.   Can you give me a concrete example?

10   A.   Sure. I'll give you a concrete example

11 that's going to be hypothetical because I just

12 don't remember the details. But sometimes in

13 epidemiology studies, exposure is categorized as

14 low, medium and high. In risk assessment, we're

15 seeking to quantify exposure. So we need to know

16 an actual value. So when we deem it high, it

17 doesn't always help us in the way that we would

18 like it to.

19   So we might encourage an epidemiologist

20 to say, look, even if you don't have the funding

21 to get a full round of measurements that we would

22 like, can you get a few measurements. And that

23 might help us use your study in the context of our

24 risk assessment.

25   Q.   I think I understand. So the

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1 epidemiologist will categorize it low, medium,

2 high. They say, look, we found a dose-response.

3 And that's frustrating to the risk assessors

4 because it's not quantified.

5   A.   It can be.

6   Q.   And what you'd like is it to be

7 quantified so that you can try to use those

8 results to better inform things like the cancer

9 slope factor, the IUR or whatever?

10   A.   Or the exposure assessment.

11   Q.   I'll mark this in a second. Do you know

12 what a threshold dose is?

13   A.   Yes.

14   Q.   Are genotoxic carcinogens generally

15 thought to have a threshold dose?

16   MS. SILVERSTEIN: Object to form and

17 foundation.

18   THE WITNESS: You're getting into a very

19 complex area of molecular toxicology that's

20 outside my area of expertise.

21 BY MR. SNIDOW:

22   Q.   When you are doing risk assessments for

23 a genotoxic carcinogen, am I correct it's standard

24 practice to use a linear no threshold model?

25   A.   Same answer as your last question.

```
 1        Q.    Ever seen a publication saying that
 2   genotoxic carcinogens do have a threshold dose?
 3        A.    I can't remember.
 4        Q.    Can't recall?
 5        A.    Well, the fact that it is a complex
 6   issue would lead me to think that I probably have,
 7   but I don't remember.
 8        Q.    So assume for a second you do a risk
 9   assessment for a population.  It comes out to be
10   one times ten to the negative one.  So it's a
11   1 percent increased risk?
12        A.    Okay.
13        Q.    Did I get it right?
14        A.    I think so.
15        Q.    I want it to be 1 percent anyway.  We'll
16   Leave the scientific notation for another day.
17   Assume it comes out to be a 1 percent increased
18   risk.  You agree that's a material risk?
19              MS. SILVERSTEIN:  Object to form and
20   foundation.
21              THE WITNESS:  You have to define
22   material.
23   BY MR. SNIDOW:
24        Q.    That's one that a risk assessor would
25   take very seriously?
```

 1   MS. SILVERSTEIN: Object to form and

 2   foundation.

 3   THE WITNESS: So I don't want to

 4   speculate on serious since that's sort of a

 5   squishy term. And often there's a demarcation

 6   between the risk assessor and the risk manager.

 7   So the risk assessor, they produce a report where

 8   a risk was, say, one in a hundred. Then, yes,

 9   generally my experience and based on my

10   understanding and history, a risk manager would

11   view that as a number that would indicate that

12   some action needs to be taken.

13   (LaKind Exhibit 15 was marked.)

14   BY MR. SNIDOW:

15   Q.   I'm going to show you an exhibit I'll

16   mark as 15, which is a series of excerpts from

17   Dr. Lipscomb's deposition. Sounds like you know.

18   MS. SILVERSTEIN: I'll just note this is

19   not the complete transcript from Dr. Lipscomb's

20   deposition and it looks like something prepared by

21   counsel rather than pages taken directly from the

22   transcript.

23   BY MR. SNIDOW:

24   Q.   If you will turn to page 4.

25   A.   Does it begin with "And risk

1 assessment"?

2   Q.   Yes. Dr. Lipscomb here said risk

3 assessment is not a causation analysis. Do you

4 agree with him on that point?

5   A.   Yes. I believe in and of itself, that's

6 to the purpose or goal of a risk assessment.

7   Q.   Do you see in the middle of the page,

8 Dr. Lipscomb says, "EPA has been very clear these

9 reference values cannot be used as estimators of

10 risk or causation"?

11   A.   I do.

12   Q.   Do you agree with that?

13   MS. SILVERSTEIN: Object to form and

14 foundation.

15   THE WITNESS: With the understanding

16 that I'm not -- well, yes, I would agree with

17 that.

18 BY MR. SNIDOW:

19   Q.   Can you turn to the next page. Do you

20 see Dr. Lipscomb says, "I've been very clear in my

21 definitions that reference values have no place in

22 the estimation of causation"?

23   A.   I see it.

24   Q.   Do you agree?

25   MS. SILVERSTEIN: Object to form and

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 1   foundation.

 2   THE WITNESS: Yes.

 3   BY MR. SNIDOW:

 4   Q.   Turn to the last page.

 5   A.   Hang on. I just want to add to my

 6   answer that I'm not actually sure what estimation

 7   of causation means.

 8   Q.   That's fair. Could you go to the page

 9   that looks like this.

10   A.   Second to last page.

11   Q.   Yeah. Do you see at the bottom, he

12   says, "Epidemiology studies is the distribution

13   and occurrence of diseases across populations."

14   He agrees. I assume you agree as well?

15   MS. SILVERSTEIN: Object to form and

16   foundation.

17   THE WITNESS: Yeah. I'd rather than not

18   provide a formal definition of epidemiology.

19   BY MR. SNIDOW:

20   Q.   Fair. Then the very last part of this

21   excerpt, so turn to the very last page, do you see

22   Dr. Lipscomb says, epidemiology and regulatory

23   risk assessments are not the same discipline.

24   And I think you testified that they are

25   related, but you agree they're not the same

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 1   discipline?

 2   A.   Correct.

 3   Q.   Put that one aside. Let's take a quick

 4   break. I'm going to see how much I have. We

 5   might be able to wrap up without taking a lunch

 6   break.

 7   THE VIDEOGRAPHER: We are off the record

 8   at 12:07.

 9   (Recess from 12:07 p.m. to 12:16 p.m.)

10   THE VIDEOGRAPHER: We are on the record

11   at 12:16.

12   BY MR. SNIDOW:

13   Q.   Dr. LaKind, you said, I think, you had

14   seen some suggestions on the internet where

15   someone used risk assessment to look at an

16   individual's risk. Is that what you said?

17   A.   I believe I said an agency, ATSDR, EPA.

18   Q.   Did you discover these internet

19   publications before or after you were retained in

20   this case?

21   A.   Definitely after. I don't recall when.

22   Q.   Were they given to you by another

23   expert?

24   A.   No.

25

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 1   Q.   Did you find it yourself?

 2   A.   Yes.

 3   Q.   What inspired you to go looking for that

 4 sort of thing?

 5   MS. SILVERSTEIN: Objection. To the

 6 extent your answer comes from conversations with

 7 counsel or other experts, I'll direct you not to

 8 answer on the basis of privilege and CMO 17.

 9   THE WITNESS: I won't answer.

10 BY MR. SNIDOW:

11   Q.   Did you save your searches for that

12 information anywhere?

13   A.   I did not.

14   Q.   Are you aware of any epidemiology on

15 TCE, PCE, benzene or vinyl chloride that measures

16 exposure in terms of milligrams per kilogram days?

17   MS. SILVERSTEIN: Object to form.

18   THE WITNESS: I'm not sufficiently

19 familiar with the literature.

20 BY MR. SNIDOW:

21   Q.   Do you know what exposure

22 misclassification is?

23   A.   Broadly.

24   Q.   Do you know what nondifferential

25 exposure misclassification is?

1   A.   Broadly.

2   Q.   Do you agree that when there's a

3   nondifferential exposure misclassification, that

4   leads to bias toward the null?

5   MS. SILVERSTEIN: Object to foundation.

6   THE WITNESS: While this is outside of

7   my area of expertise, I am aware that there have

8   been published peer-reviewed papers disagreeing

9   with that concept.

10 BY MR. SNIDOW:

11   Q.   What does bias toward the null mean?

12   A.   It means that -- so you understand bias;

13 right?

14   Q.   (Nodding.)

15   A.   And A null result means a

16 nonstatistically significant result. So it would

17 push the result in that direction?

18   Q.   And make the results appear smaller than

19 they are in reality?

20   A.   It probably depends which direction from

21 the null you're approaching.

22   Q.   If the result is positive, then what I

23 said is true?

24   MS. SILVERSTEIN: Object to form.

25   THE WITNESS: So now we're talking an

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 1   area of context, and it's outside my area.
 2   BY MR. SNIDOW:
 3       Q.   Fair enough.  You agree that you and
 4   Dr. Reynolds performed similar exposure analyses?
 5           MS. SILVERSTEIN:  Object to form.
 6           THE WITNESS:  I believe that we both
 7   relied on ATSDR water data to examine exposure via
 8   water ingestion, but beyond that, we used -- we
 9   had many differences in our approaches.
10   BY MR. SNIDOW:
11       Q.   One of them is that Dr. Reynolds
12   calculated a cumulative consumption metric?
13       A.   So one is that she used a cumulative
14   consumption metric.  Another is that she did not
15   take into account inhalation or dermal exposure.
16       Q.   And you could have calculated cumulative
17   consumption if you were asked to?
18       A.   Yes, I could have.
19       Q.   Nothing unreasonable methodologically
20   about calculating exposure that way?
21           MS. SILVERSTEIN:  Object to form.
22           THE WITNESS:  I think that including
23   body weight provides very valuable information.
24   So that would be my preferred approach.
25
```

 1 BY MR. SNIDOW:

 2   Q.   In part because that allows to do a risk

 3 assessment; right?

 4   A.   In part because it's appropriate for

 5 risk assessment and in part because body weight

 6 impacts the effects of a dose.

 7   Q.   But your inhalation exposure estimates

 8 do not take body weight into account?

 9   A.   I presented the inhalation results in

10 two different ways, as air concentration, but also

11 as dose and microgram per kilogram day.

12   Q.   You do not have a standalone opinion

13 about what exposure units are appropriate to the

14 use here, do you?

15   MS. SILVERSTEIN: Object to form.

16   THE WITNESS: I don't understand the

17 question.

18 BY MR. SNIDOW:

19   Q.   You're deferring to Dr. Bailey's

20 analysis on what to do with the exposure

21 information; correct?

22   MS. SILVERSTEIN: Object to form.

23   THE WITNESS: I'm deferring -- sorry.

24 I'm struggling with the question.

25

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 1   BY MR. SNIDOW:
 2   Q.   You calculated milligrams per kilogram
 3   day; correct?
 4   A.   And microgram per meter cubed.
 5   Q.   Microgram per meter cubed. What happens
 6   after that, you deferred to Dr. Bailey?
 7   A.   Dr. Bailey was responsible for the risk
 8   assessments.
 9   Q.   Do you know what Haber's rule is?
10   A.   I do not.
11   Q.   If you go to page 26 of the Dyer report,
12   I think Exhibit 1.
13   A.   What page?
14   Q.   26. Like we were talking about before,
15   this is showing concentrations in terms of
16   microgram per liter?
17   A.   Table 1; correct.
18   Q.   If you assume, say, five liters of water
19   per day, you could use that to calculate -- to
20   turn this into micrograms of exposure?
21   MS. SILVERSTEIN: Object to form.
22   THE WITNESS: So I believe what you're
23   missing is the number of days.
24   BY MR. SNIDOW:
25   Q.   That's fair.

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 1   A.   Unless you want it on a per day.

 2   Q.   What I described would turn it into

 3 micrograms per day?

 4   A.   Microgram per liter times liter equals

 5 microgram.

 6   Q.   If you assumed, let's say, 100

 7 micrograms per liter concentrations here and you

 8 assumed they had five liters of water per day,

 9 then their daily microgram consumption would be

10 500 micrograms. Yes?

11   MS. SILVERSTEIN: Object to form.

12   THE WITNESS: I think that math is

13 right, off the top of my head.

14 BY MR. SNIDOW:

15   Q.   And then if they're on base for ten

16 days, their cumulative microgram exposure would be

17 5,000 micrograms?

18   MS. SILVERSTEIN: Object to form.

19   THE WITNESS: Again, doing the math in

20 my head, which I prefer not to do, then I think

21 that would be fine.

22   MR. SNIDOW: No further questions.

23   MS. SILVERSTEIN: We have no questions

24 for you, Dr. LaKind.

25   THE VIDEOGRAPHER: We are off the record

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 1   at 12:23.

 2              (Whereupon, at 12:23 p.m., the taking of

 3   the instant deposition ceased.)

 4

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 1   COMMONWEALTH OF PENNSYLVANIA  )
 2   COUNTY OF ALLEGHENY              )       SS:
 3               C E R T I F I C A T E
 4               I, Ann Medis, RPR, CLR, CSR-WA and
 5   Notary Public within and for the Commonwealth of
 6   Pennsylvania, do hereby certify:
 7               That JUDY S. LAKIND, PH.D., the witness
 8   whose deposition is hereinbefore set forth, was
 9   duly sworn by me and that such deposition is a
10   true record of the testimony given by such
11   witness.
12               I further certify the inspection,
13   reading and signing of said deposition were not
14   waived by counsel for the respective parties and
15   by the witness.
16               I further certify that I am not related
17   to any of the parties to this action by blood or
18   marriage and that I am in no way interested in the
19   outcome of this matter.
20               IN WITNESS WHEREOF, I have hereunto set
21   my hand this 4th day of July, 2025.
22
23
                 _____
24                         Notary Public
25
```
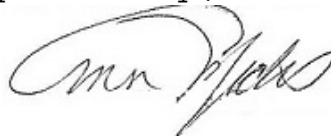
1   COMMONWEALTH OF PENNSYLVANIA   )   E R R A T A
     COUNTY OF ALLEGHENY   )   S H E E T

2

3   I, JUDY S. LAKIND, PH.D., have read the foregoing
     pages of my deposition given on July 17, 2025, and

4   wish to make the following, if any, amendments,
     additions, deletions or corrections:

5

6   Page   Line   Change and reason for change:

7   ____   ____   _____

8   ____   ____   _____

9   ____   ____   _____

10   ____   ____   _____

11   ____   ____   _____

12   ____   ____   _____

13   ____   ____   _____

14   ____   ____   _____

15   ____   ____   _____

16   ____   ____   _____

17   ____   ____   _____

18

     In all other respects, the transcript is true and

19   correct.

20

                    _____
21   JUDY S. LAKIND, PH.D.

22

     _____ day of _____, 2025.

23

     _____
24   Notary Public

25

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 1   GOLKOW, a Veritext Division
                          One Liberty Place
 2   1650 Market Street, Suite 5150
                  Philadelphia, Pennsylvania 19103
 3   877.370.3377
 4
          August 4, 2025
 5
          Kailey Silverstein, Esquire
 6   U.S. Department of Justice
          1100 L Street, NW
 7   Washington, DC 20005
 8   Re: Deposition of JUDY S. LAKIND, PH.D.
               Notice of Non-Waiver of Signature
 9
          Dear Ms. Silverstein:
10
          Please have the deponent read her deposition
11   transcript. All corrections are to be noted on
          the Errata Sheet.
12
          Upon completion of the above, the Deponent must
13   affix her signature on the Errata Sheet, and it is
          to then be notarized.
14
          Please forward the signed original of the Errata
15   Sheet to John J. Snidow, Esquire for attachment to
          the original transcript, which is in his
16   possession.
17   Please return the completed Errata Sheet within 30
          days of receipt hereof.
18
          Sincerely,
19
20
21   Ann Medis, RPR, CLR, CSR-WA
22
23   cc:
24
25   John J. Snidow, Esquire

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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