

Exhibit 606

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA

IN RE:

Case No.

7:23-cv-00897

CAMP LEJEUNE WATER LITIGATION

This Document Relates To:

ALL CASES

Videotaped Deposition of DEAN W.
FELSHER, MD, PHD, held at the Hyatt Regency San
Francisco Airport, 1333 Bayshore Highway,
Burlingame, California, commencing at 8:57 a.m.,
on the 10th of July, 2025, before Maureen
O'Connor Pollard, Registered Diplomate Reporter,
Realtime Systems Administrator, Certified
Shorthand Reporter, California CSR 14449.

Golkow, a Veritext Division

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None.

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None.

P R O C E E D I N G S

THE VIDEOGRAPHER: Good morning. We are on the record. My name is Douglas Stock. I am the legal videographer for Golkow, a Veritext division.

Today's date is July 10th, 2025, and the time is 8:57 a.m.

This video deposition is being held at 1333 Old Bayshore Highway in Burlingame, California in the matter of Diane L. Rothschild versus United States of America. This case is being heard in the United States District Court, Eastern District of North Carolina.

The deponent today is Dean Felsher, MD, Ph.D.

And, Counsel, if you would please identify yourselves for the record and state whom you represent, beginning --

MR. LEE: Before you move forward, the plaintiff -- that may have been Monday's deposition.

THE VIDEOGRAPHER: Okay. My apologies.

1 MR. LEE: Or Tuesday, whenever it
2 was.

3 MR. RYAN: The parties are Bruce
4 Hill and Scott Keller.

5 THE VIDEOGRAPHER: Okay. Thank you
6 for noting that amendment. My apologies.

7 And, Counsel, if you would please
8 identify yourselves for the record and
9 state whom you represent.

10 MR. LEE: Certainly. Randy Lee and
11 Pat Telan for the plaintiffs.

12 THE VIDEOGRAPHER: Thank you.

13 MR. RYAN: Patrick Ryan.

14 MR. KLOTZBUCHER: And William
15 Klotzbucher for the defense.

16 THE VIDEOGRAPHER: Thank you, all.

17 And the court reporter today is
18 Maureen Pollard, CSR number 14449. And if
19 you would please now swear in the witness.

20 And then, Counsel, you may proceed.

21 * * *

22 Whereupon,

23 DEAN W. FELSHER, MD, PHD,
24 being first duly sworn to testify to the truth,
25 the whole truth, and nothing but the truth, was

1 examined and testified as follows:

2 EXAMINATION

3 BY MR. RYAN:

4 Q. Good morning, Dr. Felsher. Would
5 you please state your name for the record.

6 A. My name is Dean Walton Felsher.

7 Q. Wonderful.

8 I'm an attorney with the Department
9 of Justice. My name is Patrick Ryan. I'm not
10 going to recite all the rules, I know you've
11 been deposed before especially in this matter,
12 just a couple highlights.

13 If you don't understand any question
14 of mine, just please state so. I'll do my best
15 to rephrase. If you answer a question, I'm
16 going to assume that you understood it.

17 Is that fair?

18 A. Yes.

19 Q. Thank you.

20 And is there nothing preventing you
21 today from testifying truthfully?

22 A. There's nothing.

23 Q. And of course if you wish to take a
24 break at any point, just let me know. I'd just
25 ask that if there's a question pending that we

1 just finish that up and then we can break.

2 Fair?

3 A. That's fair. Thank you, Mr. Ryan.

4 Q. Absolutely.

5 I know in this deposition, I'm sure
6 you're aware, we're going to discuss certain
7 chemicals. If I refer to trichloroethylene as
8 TCE or tetrachloroethylene as PCE, will you
9 understand me?

10 A. Yes.

11 Q. Okay. And did you bring any
12 materials with you today?

13 A. No.

14 Q. I have a couple exhibits I just want
15 to get out of the way at the start. I'm going
16 to hand you what has been marked as Felsher
17 Exhibit Number 1.

18 (Whereupon, Exhibit Felsher 1 was
19 marked for identification.)

20 BY MR. RYAN:

21 Q. I'm going to hand a copy to your
22 counsel first. This document is entitled Notice
23 of Deposition and Request For Production of
24 Documents to Dean Felsher.

25 Do you recognize this?

1 A. I believe so. I didn't see a
2 physical version of the document, and as I
3 imagine you would understand it looks a little
4 different, but I believe that this is similar to
5 a document that I saw in electronic version, if
6 not the same, as much as I can tell.

7 Q. Okay. And you understand this asks
8 for certain documents and communications to be
9 produced?

10 A. I believe that's what this document
11 is related to, as best as I can tell.

12 Q. Did you look to see if you had any
13 responsive documents?

14 A. I believe I did with whatever
15 caveats I believe in the communications that you
16 had with the attorneys involved in this matter.

17 Q. What steps did you take to determine
18 if you had any responsive documents?

19 A. I looked through this document as
20 best as I could understand regarding materials
21 that appear to be requested as much as I could
22 know based on my ability to recall.

23 I took efforts as guided by the
24 attorneys in terms of looking to see whether or
25 not there were documents that were responsive

1 that were considered to be appropriate to
2 provide.

3 Q. Okay. And have you reviewed any new
4 materials or documents since February 7th, 2025?

5 A. Well, I apologize, but sitting here
6 today it would be hard for me to say that I can
7 remember chronologically exactly when I received
8 or reviewed documents exactly since
9 February 7th. It's possible that there are
10 documents that I was provided that I reviewed.

11 Certainly to answer your question
12 truthfully, I'm continuously, or more accurately
13 continually looking at the medical literature as
14 part of my everyday activity, and I believe that
15 activity would be encompassed by what we would
16 consider documents, certainly looking for both
17 published scientific papers and government
18 documents and other materials.

19 The only thing I can recall is that
20 I believe -- and there could be other materials.
21 I believe I received some more recent
22 correspondence regarding some of the medical
23 records for some of -- for the -- at least I
24 recall for one of the plaintiffs.

25 Q. Do you remember which plaintiff,

1 Mr. Keller or Mr. Hill?

2 A. I know I received some additional
3 medical records regarding Mr. Hill.

4 Q. How recently was that?

5 A. I apologize, I can't remember the
6 exact timing. It may have been probably in the
7 last couple of weeks. It might have been
8 sometime in the last month.

9 Q. And how often would you say in
10 Mr. Hill and Mr. Keller's case do you do a
11 search for medical research or publications?

12 A. Oh, Mr. Ryan, I didn't mean to
13 mislead you. Normally part of my activities
14 anyway I'm engaging in reviewing medical science
15 and literature continually. It can be
16 challenging to discriminate that it's something
17 specific to a particular case versus my everyday
18 activities.

19 As an editor of multiple journals, I
20 get asked to review papers regarding
21 carcinogenesis. As a world leader in science,
22 everyday I'm asked my scientific opinion or
23 asked to give presentations. I meet with
24 scientists, I discuss science at Stanford, at
25 other institutions. I'm publishing papers or

1 working on manuscripts.

2 So I would say it's -- almost every
3 day there's some aspect of where I'm looking,
4 thinking, or reviewing.

5 So I'm trying to -- you asked me a
6 broad question so I'm making sure I answer it,
7 you know, as -- with as much thoughtfulness as
8 possible.

9 Q. I appreciate that. Thank you.

10 A. You're welcome.

11 Q. We're in the specific causation
12 phase of this litigation, and I understand you
13 authored two reports, one for Mr. Scott Keller
14 and one for Mr. Bruce Hill, is that correct?

15 A. I'm assuming you're saying I
16 authored two specific causality reports. If
17 that's the question, yes, I believe those are
18 the two specific causality records. Of course I
19 also authored a general causality report which
20 my understanding was not the subject of today.

21 Q. Your understanding is correct. You
22 gave a deposition on that I believe in April for
23 your general causation opinion, right?

24 A. I can't remember the date, but if
25 you remember the date, I believe you remembered

1 it accurately.

2 Q. Okay. We'll go with that, then.

3 A. Thank you, Mr. Ryan, for your
4 patience.

5 Q. I'm showing you what's been marked
6 for identification as Felsher Exhibit 2. This
7 is a document entitled Specific Causation Report
8 of Dean Wilton Felsher for Plaintiff Bruce Hill.

9 MR. RYAN: And I'll give this to
10 counsel first.

11 (Whereupon, Exhibit Felsher 2 was
12 marked for identification.)

13 A. Well, I believe also to be accurate,
14 and I'm not a lawyer so I'm not sure how to
15 describe it, but I know that I had a
16 supplemental report for one of the plaintiffs.
17 So I don't know if that's considered an
18 additional report or it's considered part of the
19 two reports.

20 BY MR. RYAN:

21 Q. Okay. Understood.

22 And was that supplemental report for
23 Mr. Bruce Hill?

24 A. That's my recollection.

25 Q. Okay. We're going to get to that

1 just in a second.

2 For Exhibit Number 2, do you
3 recognize this as a copy of your initial report
4 in the Hill case dated February 7, 2025? By all
5 means take all the time you need to review it.

6 (Witness reviewing document.)

7 A. As much as I can tell, it's a black
8 and white version of the document that I had
9 produced.

10 Thank you for the chance for me to
11 review it.

12 Q. Absolutely.

13 And you prepared this report,
14 correct?

15 A. I believe that I'd generally say
16 that I prepared the report. There were aspects
17 of the document that I had assistance.
18 Certainly to be accurate I didn't prepare the
19 cover page, you know, I didn't prepare the table
20 of contents. I believe there may be aspects of
21 the report in which I had assistance, but I
22 believe the substance of the report I think of
23 in terms of opinions I believe are prepared by
24 me.

25 Q. When you say you had assistance with

1 aspects of the report, who provided that
2 assistance?

3 A. Well, to be accurate, I don't know
4 the individual who prepared actual title and the
5 table of contents necessarily, but I believe it
6 would have been part of the staff of the lawyers
7 that are here today for the plaintiff counsel.

8 Q. Understood.

9 You signed this report, right,
10 Exhibit 2?

11 A. I'm just looking if this is the
12 version of the report I signed. I can't tell.
13 I believe -- I mean, this particular document I
14 can't see where I signed it, but I believe, as
15 best as I can tell looking at this, that this is
16 a document that I at some point would have
17 signed.

18 Q. And this was the report that you
19 subsequently amended, correct?

20 A. I believe that's the case.

21 Q. I'm showing you what has been marked
22 for identification as Felsher Exhibit Number 3.

23 MR. RYAN: And for the record, this
24 is a document entitled Amended Specific
25 Causation Expert Report of Dean W.

1 Felsher.

2 And I'll hand this to Randy first.

3 MR. LEE: Thank you.

4 THE WITNESS: Thank you.

5 (Whereupon, Exhibit Felsher 3 was
6 marked for identification.)

7 BY MR. RYAN:

8 Q. Do you recognize this as a copy of
9 your amended Hill report?

10 A. It seems shorter, so I believe it's
11 the report. It looks like there's something not
12 included. I can't tell just looking at it, but,
13 I mean, just knowing that the documents -- maybe
14 you know what it is that you gave me that's
15 different.

16 Q. Well, from what I can tell,
17 Dr. Felsher, your initial Hill report,
18 Exhibit 2, attached a copy of your CV, and your
19 materials considered, and I believe your fee
20 schedule. I believe the supplemental Hill
21 report, Exhibit Number 3, those weren't
22 attached.

23 A. It looks like, as much as I can
24 tell, that's the case. I can see that this
25 amended specific causation report does not

1 appear to have my CV or a fee schedule. It just
2 simply has this additional piece of paper that
3 appears to be describing, it says amended report
4 at the end, and this document appears to have my
5 signature.

6 Q. Understood.

7 So for Exhibit Number 2, your
8 initial Hill report, the CV, the materials
9 considered, your fee schedule, does that remain
10 accurate?

11 A. Well, in point of fact, the CV I've
12 listed is, it looks like, in 2024. We're now in
13 2025, and there are likely to be additional
14 publications and presentations, but I'm not --
15 there's not any intention not to provide you.

16 And I didn't look to see whether or
17 not -- I don't see the fee schedule so I don't
18 know whether or not that's changed. I didn't
19 actually see a fee schedule in this document.

20 Q. I think it's towards the last page.

21 A. I see my prior testimony.

22 Oh, my fee schedule, this is from
23 two years ago. My fee schedule is that I would
24 charge \$2,000 an hour for trial and deposition
25 and patient interview. I believe I was asked

1 that in the last deposition.

2 Q. Understood.

3 A. And then I think you asked me one
4 other thing, had it changed. I don't recall.
5 If there's some other aspect I didn't answer, it
6 was unintentional.

7 Q. Not a problem at all.

8 Can you tell me why the Hill report
9 was supplemented?

10 A. Well, what I recall, and I may not
11 recall the details, that there was a slight
12 change in some of the information that had been
13 provided to me that -- regarding aspects of the
14 timing of Mr. Hill's exposure at Camp Lejeune.
15 There were some modest changes that were
16 reflected in my amended report that I was
17 informed of, and because of that change I was
18 asked to consider that.

19 And generally it would not change
20 opinions that I have, but because there was a
21 change that was of note enough that it would
22 change something in the report, as my
23 understanding, an effort was made for me to see
24 that and then to be able to have a chance to
25 amend my report.

1 Q. Okay. For Exhibit 2, in your
2 initial Hill report, if you could turn to
3 page 24. There's going to be a section called
4 Exposure History.

5 A. Tell me the page again, Mr. Ryan.

6 Q. Page 24.

7 A. Oh, okay. Oh, there must be two
8 page -- I'm confused. Oh, I see --

9 (Cross-talking.)

10 Q. Yeah --

11 A. -- there are two page 24s, because
12 my CV.

13 Yeah. Okay, I'm at page 24, please.

14 Q. Okay. The first paragraph in the
15 Exposure History section --

16 A. Yes.

17 Q. -- I'm going to read this first
18 paragraph. It states, "Mr. Hill testified in
19 his April 9, 2024 deposition that he first
20 arrived at Camp Lejeune in May 1983, and
21 remained there until his departure in June 1985;
22 a total of approximately 24 months. In addition
23 to this time, Mr. Hill further reported he was
24 at Camp Lejeune at least twice more for Marine
25 Corps training, outside of the 24 months

1 previously referenced.

2 "While living in Officers' Housing
3 in Paradise Point on Camp Lejeune between
4 December 1983 to June 1985, Mr. Hill reportedly
5 was exposed to water in his activities of daily
6 living."

7 Dr. Felsher, if I read that right?

8 A. As best as I can tell, you've read
9 it.

10 Q. The reason why I highlight this
11 section, it appears that this paragraph was
12 changed in the supplemental Hill report in
13 Exhibit 3.

14 Does that match your recollection of
15 what you supplemented?

16 A. Well, since I have it, I should
17 look. Do you know what page it is? I don't
18 remember.

19 Q. Yeah. It will be page 24 in Exhibit
20 Number 3 under the Exposure History section.

21 (Witness reviewing document.)

22 A. Right.

23 Q. Okay. So just for clarity I'll read
24 that first paragraph in Exhibit 3. It states,
25 "Mr. Hill testified in his April 9, 2024,

1 deposition that he first arrived at Camp Lejeune
2 in 1983 and remained there until his departure
3 in 1985. An exposure analysis by Dr. Kelly
4 Reynolds reflects that Mr. Hill was exposed to
5 the water at Camp Lejeune between July 11, 1983,
6 through May 24, 1985.

7 "Per her report, Mr. Hill lived off
8 base between July 1983 to December 1983. During
9 this time period he was exposed to water at Camp
10 Lejeune while working on base.

11 "Mr. Hill reportedly moved into
12 Officers' Housing in Paradise Point on Camp
13 Lejeune on December 22, 1983, and remained there
14 until May 24, 1985. During this time, he was
15 exposed to the water in his activities of daily
16 living, both at work and at home.

17 "While stationed and living at Camp
18 Lejeune, Mr. Hill was reportedly either on leave
19 or deployed for a total of approximately"
20 41 days.

21 Did I read that right from
22 Exhibit --

23 A. Well, I thought you said "41," and
24 it says "45."

25 Q. Okay. Yeah, that's correct.

1 Apologies.

2 A. Not very important, but you're
3 asking me if it's correct and if it's incorrect.

4 Q. I asked if I read it right. Okay.

5 A. Yeah. And I guess that was a test
6 for me. I am listening to you.

7 Q. All right. Wonderful. That was
8 intentional.

9 A. There you go. I love it when
10 lawyers tell you that they've tried to trick you
11 and they didn't succeed.

12 Q. No, that was just me working on my
13 reading skills.

14 A. You have great reading skills.

15 Q. Thank you.

16 Yeah, so other than that, does that
17 paragraph look right, Exhibit 3?

18 A. I believe to the best of my
19 understanding the material is right. And other
20 than the minor misreading, you read it
21 correctly.

22 Q. Okay. So to me this paragraph
23 looked like it was changed between your initial
24 Hill report, Exhibit 2, and your supplemental
25 Hill report, Exhibit 3, right?

1 A. Yes.

2 Q. Okay. And it was based on Dr. Kelly
3 Reynolds' listing of what Mr. Hill's exposure
4 history was at Camp Lejeune, is that right?

5 A. I believe generally it has to do
6 with the exposure analysis of Dr. Reynolds. I
7 think that's generally the major substance of
8 the changes between the paragraphs in the two
9 different reports.

10 Q. Okay. And in this supplement, did
11 you rely on Dr. Reynolds' report to determine
12 Mr. Hill's exposure period at Camp Lejeune?

13 A. Well, yes and no. I am relying on
14 Dr. Reynolds, and that's certainly in part what
15 I'm relying.

16 I also am aware of Mr. Hill's
17 testimony.

18 And I'm also aware of in general
19 that people who lived in Camp Lejeune were more
20 likely than not exposed and had exposure to
21 dangerous chemicals based on government
22 documents and based on scientific published
23 literature.

24 I think in this particular case the
25 change is to incorporate facts that took into

1 account some changes in the dates, and to also
2 take into account the fact that when somebody is
3 working as a military person on a base that
4 there will be times they're not on the base, and
5 they're providing some more accuracy to the
6 quantitative numbers of when they were on leave
7 or when they were deployed.

8 Q. So the amendment to Mr. Hill's
9 exposure history, I understand you to say you
10 relied on Mr. Hill's deposition testimony and
11 Dr. Kelly Reynolds' exposure analysis, is that
12 right?

13 A. That's part of what I said, but that
14 wouldn't be totally. I said in part I was aware
15 and I could rely in part on his testimony, in
16 part I could rely on Dr. Reynolds.

17 There's also information from
18 Dr. Maslia. There's also information based on
19 government documents. There's also information
20 based on publications describing issues of
21 exposure in people who were working as military,
22 or their families, or employed by Camp Lejeune,
23 what their exposure.

24 So there's multiple -- like any
25 scientist, I think, right, lots of different

1 types of information. All of those were
2 included in part.

3 Q. Understood.

4 Specifically to determining what
5 dates Mr. Hill was on the base, I'm just trying
6 to figure out what documents you reviewed to
7 determine that. So I see you mentioned
8 Mr. Hill's deposition testimony, Dr. Reynolds'
9 reports.

10 And my question would be, what else
11 did you rely on when looking to determine the
12 specific dates Mr. Hill was on Camp Lejeune?

13 A. Well, to my knowledge for the
14 specific dates, as much as I can recollect,
15 those are what I know. Of course the exact
16 date, like what day in the week or the exact
17 number of days, I don't know that I'm telling
18 you -- I'm not trying to imply that I'm relying
19 on other people, what he said and what
20 Dr. Reynolds determined, but I don't mean to
21 imply that the exact number of days in itself
22 was what I considered as a scientist and doctor
23 to be the information to support.

24 I wanted to be factually accurate,
25 but not all of the facts and details are equally

1 weighted in terms of how I think about making a
2 determination of specific cause.

3 Q. Did you review any military records
4 for Mr. Hill when preparing your report, either
5 your initial or supplemental Hill report?

6 A. I don't believe sitting here today
7 that I was provided something, unless I don't
8 understand what a "military record" is. I don't
9 know if the testimony of a former military would
10 be considered part of his military record.

11 Q. Have you reviewed military records
12 before?

13 A. Well, asked broadly like that, I
14 wouldn't know. I mean, I have been a doctor at
15 VAs throughout my career, many of my patients
16 are military, and I probably have reviewed some
17 records. Not -- and certainly I don't know if
18 VA medical records are considered military
19 records. I would think in some cases they would
20 be considered military records. So perhaps.

21 Q. Okay. Would you say you would know
22 what -- you would recognize what a military
23 service record was if you saw it?

24 A. Well, I'm not sure what that means.
25 I ascribe to what I would consider -- the VA

1 takes care of people in the military and those
2 government records, If those are considered
3 military records, then I'd recognize those sort
4 of documents.

5 If you're talking about something
6 specific, you'd have to show me and I can tell
7 you whether or not it's something that I've
8 seen.

9 Q. Okay. Are you aware that Mr. Hill's
10 military records would show his time stationed
11 on Camp Lejeune?

12 A. Again, I'm not sure what you are
13 referring to. If there's something you want to
14 show me and see if I've considered, or give me
15 an example of what you mean.

16 Q. Okay. I'm just asking generally, do
17 you recall reviewing any military records that
18 would show his orders or his record of service
19 that would show the times that he was on Camp
20 Lejeune?

21 A. Well, if that includes records
22 related to medical records as a veteran, then
23 it's possible those are documents that I would
24 see. Most military will have records that would
25 include aspects of their service that would be

1 part of their Veteran's Administration medical
2 records, and those are -- so if that's
3 considered part of his military records and
4 records of service, then I would say it's likely
5 at some point I've seen such materials.

6 If you're asking me did I see orders
7 for him to do a specific military action, no, I
8 haven't, like, looked to see whether or not
9 there was some specific order for him to
10 participate in some sort of specific military
11 function in some site when he was deployed.

12 But when you ask it broadly, I would
13 say I would think medical records is part of the
14 VA would be considered part of his military
15 records.

16 Certainly the ATSDR seems to
17 consider issues, and the VA seems to have its
18 own way of thinking about medical records and
19 injury, disability.

20 I mean, I spent years working at
21 different VAs. I must have worked as a doctor
22 in half a dozen VAs. They're fantastic
23 institutions. They're a great service we do to
24 our military, providing them with medical care.

25 Q. Okay. There's one other section

1 between your initial Hill report and your
2 supplemental. It will be on page 27. If you
3 can look -- for Exhibit 2, your first initial
4 Hill report.

5 A. Exhibit -- sorry. Yes.

6 Q. Number 2.

7 A. Yes.

8 Q. Okay. So you'll see that there is a
9 chart of Hadnot Point that you say you examined,
10 Appendix J of Morris Maslia's expert report, is
11 that right?

12 A. Just making sure. That's what I
13 believe is the case it says here.

14 Do you want to point to where -- I
15 see the reference Appendix J. I'm trying to
16 remember where I mention Maslia.

17 Q. I think it's on the -- sorry, it's
18 on the previous page, page number 26 --

19 A. Mm-hmm, I see.

20 Q. -- of Exhibit --

21 A. Sorry, I didn't mean to go "uh-huh."
22 Take that off.

23 Q. No, not a problem.

24 When it says Camp Lejeune Water
25 Contamination heading --

1 A. Yes.

2 Q. -- it states, "I have reviewed the
3 expert report" --

4 A. Correct.

5 Q. -- "of Morris L. Maslia dated" --

6 A. Yes.

7 Q. -- October 25th."

8 A. That is correct. This is from the
9 expert report of Mr. Morris L. Maslia dated
10 October 25th, 2024.

11 Q. Okay. And so on page 27, this chart
12 that you have here on Exhibit Number 2, on the
13 left-hand side it says Month and Year. The
14 first date is May 1983 through, the last date at
15 the bottom of the chart, June 1985.

16 Do you see that?

17 A. Yes, Mr. Ryan.

18 Q. Okay. And so if you look at, on
19 Exhibit Number 3, your amended Hill report --

20 A. Yes.

21 Q. -- on page 27.

22 A. Yes.

23 Q. There is the same chart that you're
24 saying is from Appendix J of Morris Maslia's
25 report, right?

1 A. Just checking.

2 That is what I say on page 26,
3 correct.

4 Q. Okay. And so in the amended report,
5 the first month and year on the left-hand side
6 is July 1983, and it goes through the last date
7 on the bottom of the chart, June 1985, is that
8 right?

9 A. You're looking at the table, and
10 that is what it shows, correct.

11 Q. Okay. So between your Exhibits
12 Number 2 and 3, your supplemental report on
13 Exhibit 3, it amends the dates at Hadnot Point
14 that Mr. Hill would have been at Camp Lejeune,
15 is that right?

16 A. I believe that is correct as much as
17 I recall, but we've talked about that there
18 were -- there was an update to providing more
19 facts regarding the time period in which he
20 would have been exposed to the contaminated
21 drinking water at Camp Lejeune and focused at
22 the drinking water in the well associated with
23 Hadnot Point.

24 Q. And this update or supplement on
25 page 27, this reflects the exposure analysis by

1 Dr. Kelly Reynolds which you're relying on,
2 right?

3 A. Well, it in part reflects.
4 Dr. Reynolds wrote a report. It contains a lot
5 more information. But I believe the table is an
6 effort to update the records so that the facts
7 are updated from the time period in which more
8 likely Mr. Hill was exposed to contaminated
9 drinking water from Hadnot Point.

10 Q. Okay. From my view, these were the
11 two sections that were amended in your
12 supplemental Hill report.

13 Are you aware of any other sections
14 in your amended Hill report that were changed?

15 A. Sitting here today I can't say I've
16 memorized both reports. If there was another
17 change, I'm not recollecting it right now. I
18 believe those are the changes that I recall as
19 best as I can say sitting here today.

20 Q. And would you say your amended Hill
21 report contains a complete statement of your
22 opinions in the Hill report -- in the Hill case?
23 Sorry.

24 A. Well, I'm not sure what you would
25 mean by "complete." It provides opinions, and

1 they're my opinions. I, as stated in the
2 report, could be provided additional
3 information. I could be asked questions by you
4 and a multitude of other attorneys associated
5 with this legal case Department of Justice that
6 would elicit an opinion. I don't know what
7 you're going to ask me.

8 You have a multitude of experts that
9 may have amendments and supplemental reports,
10 the science papers published during this case.
11 The UK Biobank studies published by Wang and Yu
12 provide the most detailed, important additional
13 information on the role of benzene as being a
14 cause of lymphoma and leukemia.

15 I can't anticipate what will get
16 published, what other information will be
17 provided.

18 At the time I wrote these documents
19 I tried to provide a summary of my major
20 opinions. I'm also a scientist-doctor with
21 decades of experience and I have lots of
22 opinions. You're welcome to ask me about any of
23 the opinions that I have, and I'll answer them
24 with the best of my ability.

25 Q. Understood.

1 Have you reviewed your initial and
2 amended Hill reports in preparation for today?

3 A. Well, I've reviewed it in the sense
4 that I had a chance to look at the document. I
5 haven't memorized the document. I wouldn't say
6 it's possible for me to remember all the
7 details. This took a considerable amount of
8 time to prepare. There's a lot of medical
9 details.

10 Q. Is there anything in your review or
11 sitting here today you want to edit or change
12 about your amended Hill report?

13 A. Sitting here today I wouldn't say
14 that there's anything, just asked generally like
15 that, that generally I can think I would amend
16 or change.

17 But certainly you being a bright
18 person and asking me good questions for the rest
19 of today, there could be statements that I'd
20 make that would be clarifications that I can't
21 anticipate that I would make, just based on my
22 efforts to provide the best detail of my
23 understanding of the science and medicine
24 generally and specifically as it relates to
25 Mr. Hill.

1 Q. All right. If there's anything that
2 comes up in our deposition today that would make
3 you want to change or edit anything in the
4 supplemental report, just let me know, okay?

5 A. I will try to let you know if
6 there's any detail of that significance.

7 Q. Okay. I hand you another exhibit
8 here, what I'll mark as Felsher Exhibit
9 Number 4.

10 (Whereupon, Exhibit Felsher 4 was
11 marked for identification.)

12 MR. RYAN: This is a document
13 entitled Specific Causation Expert Report
14 of Dean W. Felsher for Scott Richard
15 Keller.

16 Randy (handing).

17 MR. LEE: Thank you, sir.

18 THE WITNESS: Thank you, Mr. Ryan.

19 BY MR. RYAN:

20 Q. Dr. Felsher, do you recognize this
21 as a copy of your report in the Keller case? By
22 all means take all the time you need to review
23 it.

24 (Witness reviewing document.)

25 A. As much as I can tell glancing at

1 this, this is a black and white printed copy of
2 the report that I recall that I prepared
3 regarding Mr. Keller.

4 Q. And you prepared and signed this
5 report, correct?

6 A. I prepared and signed this report
7 with the caveat like I described, that there
8 were aspects of the report, including the actual
9 title page and the table of contents, that I had
10 assistance in preparing so the document would be
11 easier for one to look at and know what the
12 document was.

13 Q. Understood.

14 And when you say you had aspects of
15 it that you had assistance, would it be the same
16 as what you testified for the Hill reports, your
17 initial and supplemental?

18 A. I believe so.

19 Q. And it would have been meeting with
20 someone from the plaintiffs' firm, correct?

21 A. That's my understanding.

22 Q. But the substance of your opinions
23 for Mr. Keller, would you say that you authored
24 those sections?

25 A. As much as I understand what the

1 word "substance" means, I believe that what I
2 can say is that opinions stated here I believe
3 are based on my education, qualifications,
4 review of documents described here, medical
5 literature and experience, so that I would
6 consider them my opinions.

7 Q. Okay. And Exhibit 4, your Keller
8 report, this is dated February 7, 2025, correct?

9 A. I see that as the date, correct.

10 Q. Would you say it contains a complete
11 statement of your opinions in the Keller case?

12 A. Well, realizing this is from 2024,
13 as in the case of what I described previously in
14 this deposition, there will be information,
15 science, that I have learned that may have and
16 likely happened after February 2024, including
17 the Biobank publications of Yu and Wang.

18 There could be other government
19 documents that I've seen, other information
20 provided after this date that would now be
21 included in what I've reviewed and considered,
22 and I would incorporate into opinions that I
23 have or that you may elicit from me asking
24 questions today or I get asked at trial.

25 Q. I know that you mentioned -- I see

1 that on the bottom left side of the report it
2 says February 7, 2024. Is that meant to say
3 2025? I saw Randy there signaling that.

4 What I'm asking, Dr. Felsher, I
5 think the 2024 is a scrivener's error, right?
6 It was actually dated February 7, 2025?

7 A. I believe that's correct. And that
8 is confusing me as well, because that was more
9 than a year ago.

10 Q. Okay. So this is February 7, 2025?

11 A. I believe that's the case.

12 Q. Okay. And with the correction of
13 the date, would you say that this would be an
14 accurate and complete statement of your opinions
15 in the Felsher case -- I'm sorry, in the Keller
16 case?

17 A. Thank you. Please, not the Felsher
18 case.

19 Q. No case against you, Doctor.

20 A. Especially when I'm with Department
21 of Justice lawyers.

22 So I would say certainly as of
23 February 2025, I can't say that I recall
24 anything in particular, but it's possible
25 certainly that I've reviewed science or medical

1 literature, government documents in the last
2 five months that I -- that would be included in
3 opinions you may elicit from me in asking
4 questions. But this does provide a summary of
5 my opinions.

6 Q. And did you review Exhibit 4, your
7 Keller report, in preparation for today's
8 deposition?

9 A. I had a chance to look through this
10 document. I certainly didn't memorize all the
11 statements. And the document is complicated.
12 This individual has had a complicated medical
13 history.

14 Q. And in your review is there anything
15 you want to edit or change in your Keller
16 report?

17 A. Sitting here right now I can't think
18 of anything that I'd want to edit or change.
19 It's possible you'll ask me questions of
20 clarification, which you're welcome to, which --
21 that I can't anticipate. I'm not sure what
22 you're going to ask me today.

23 Q. Okay. And similar to the Hill
24 report, if anything we testify about in today's
25 deposition comes up that would make you want to

1 change or edit your Keller report, just let me
2 know, okay?

3 A. As much as possible if there's
4 anything that comes up, I will try to bring it
5 to your attention.

6 Q. Okay. So between Exhibits 1, 2 and
7 3 and 4, so your amended Hill report, your
8 initial Hill report, and your Keller report,
9 you've provided the materials you considered in
10 forming your opinions for the Hill and Keller
11 cases, correct?

12 A. I have provided materials considered
13 within reason. I've been a professor for
14 26 years, I've been a scientist and doctor for
15 almost 40 years, and certainly there's a
16 multitude number of documents and publications
17 and science and medicine that I understand that
18 would be incorporated into the way I formulated
19 my opinions, and I couldn't possibly list
20 everything I've learned and thought about that
21 would be relevant. But I provided, I think, a
22 reasonable list of documents that I considered.

23 Q. Okay. Following your initial Hill
24 and Keller reports, you recall that you served
25 some additional materials considered for both

1 cases, right?

2 A. I believe that's the case. I don't
3 remember the chronology exactly.

4 Q. Okay.

5 A. I know there was some additional
6 materials.

7 Q. Okay. I have some of the
8 supplements here, and I can just go over them to
9 make sure I understand everything that you've
10 considered.

11 Dr. Felsher, I'm handing you what
12 has been marked as Felsher Exhibit Number 5.
13 This document is entitled Dean W. Felsher -
14 Additional Materials Considered in the
15 February 2025 Specific Causation Expert Report
16 for Bruce Hill.

17 (Whereupon, Exhibit Felsher 5 was
18 marked for identification.)

19 BY MR. RYAN:

20 Q. Do you recognize this as a
21 supplement, sir, for your Hill report?

22 A. I do. And this is what -- this is
23 what I couldn't remember in terms of what you
24 were asking me before that I knew -- I was
25 continuously looking at medical literature, and

1 all of this literature I could have seen before
2 I provided the reports because it was published
3 after the reports.

4 So I appreciate the chance to
5 clarify. That's what I was trying to
6 remember --

7 Q. Certainly.

8 A. -- when I was suggesting to you that
9 I'm continuously looking at the literature, and
10 there are examples of where I find in -- there's
11 papers in April and in March of 2025, I think
12 even more recently.

13 In some cases it doesn't look like
14 the scribe put all of the dates, meaning I don't
15 know the month. I can see the year. So I don't
16 know whether -- I can't recall right now whether
17 or not they've been published before or after I
18 produced the reports.

19 Q. Understood.

20 And do you recall that this
21 supplement was served April 22nd, 2025?

22 A. I mean, sitting here I don't
23 remember when it was served, but if that is when
24 it was served, then I'll believe that that's the
25 date.

1 Q. Okay. I'm going to show you another
2 supplement which is marked as Felsher Exhibit
3 Number 6.

4 (Whereupon, Exhibit Felsher 6 was
5 marked for identification.)

6 BY MR. RYAN:

7 Q. This has the same title as
8 Exhibit 5, only it's for Plaintiff Scott Keller.
9 It says, Additional Materials Considered for the
10 February 2025 Specific Causation Expert Report
11 of Dean Felsher.

12 A. Thank you.

13 Yeah, like, for example, the Yu
14 paper that I've already alluded to in the
15 deposition was published in April 2025. The
16 paper is important, as all this literature.
17 Those papers were not -- that paper was not
18 available to me, I believe, at the time that I
19 wrote and produced both of those reports that
20 we're talking, the Hill and the Keller report
21 and the amended report, I think.

22 Yes, I recognize -- to the question
23 at hand, I recognize this as a list of
24 additional materials considered regarding Scott
25 Keller.

1 Q. Okay. And sitting here today, would
2 you know whether this supplement was served
3 April 22nd, 2025 as well?

4 A. I didn't remember, and it doesn't
5 say the date on here. If that is the date that
6 you received it, I'm not going to argue, but I
7 don't remember the exact date. It had to have
8 been after February 2025.

9 Q. Fair enough.
10 So both Exhibits 5 and 6, they
11 supplement 13 additional materials that you
12 considered for the Hill and Keller reports,
13 right?

14 A. It looks in point of fact that there
15 are 13 additional publications amongst things
16 that I have seen and over the period of time
17 since I produced the Hill and Keller reports.

18 It certainly wouldn't include all
19 the papers and all the science that I've seen
20 and reviewed, but they were documents --
21 scientific documents that in being prepared to
22 address your questions regarding my reports I'm
23 calling your attention to.

24 Q. Okay. And from what I can tell
25 between Exhibits 5 and 6, they're identical for

1 the additional materials considered for Scott
2 Keller and Bruce Hill, is that right?

3 A. I couldn't remember. But as best as
4 I can tell looking at the 13 and looking at the
5 first author, it appears that they're identical.
6 If it's not, then I'm missing something
7 unintentionally.

8 Q. And some of these additional
9 materials look like the medical literature and
10 publications were published prior to February 7,
11 2025. For example, on number 5 on both Exhibits
12 5 and 6 is a publication by Jiang?

13 A. Jiang, yeah.

14 Q. Jiang. "Genomic and algorithm-based
15 predictive risk assessment models for benzene
16 exposure," it looks like that was published
17 January 21st, 2025?

18 A. It does look like that's when it was
19 published. So I think technically it was a
20 couple of weeks published before my report, I
21 think. I think factually you're correct, albeit
22 I'm good at looking at the literature.

23 But I travel over 100,000 miles a
24 year, and I don't know that I actually can look
25 at the date something is published to review.

1 So in point of fact it is very unlikely that I
2 would have listed this if I actually had seen it
3 before. I think I saw this after I produced the
4 reports, and I think it's reasonable given it's
5 January.

6 Q. Understood.

7 So what would have happened here is
8 you would have found this publication after the
9 February 7th report and then supplemented it,
10 right?

11 A. Right. The documents are 2024. The
12 magical -- like, I don't know. I don't remember
13 if I'd seen it before or after. I can't
14 remember what brought my attention to it.

15 The Jiang report, much more likely
16 than not, I actually didn't see it until after I
17 produced the report.

18 Q. Okay. There was another supplement
19 made I believe two days after that I'll show
20 you.

21 MR. RYAN: I'm going to mark this as
22 Felsher Exhibit Number 7.

23 (Whereupon, Exhibit Felsher 7 was
24 marked for identification.)

25 ///

1 BY MR. RYAN:

2 Q. This is supplement of Additional
3 Materials Considered for the February 2025
4 Specific Causation Expert Report of Dean Felsher
5 on Bruce Hill.

6 A. Yes, I see that.

7 Q. Sitting here today would you know
8 that this supplement was served on April 24th,
9 2025?

10 A. I didn't remember the date. I knew
11 it was after February.

12 Q. Okay. This lists one additional
13 what looks like a publication, is that right?

14 A. I believe it's a publication based
15 on the fact I see Environmental Research
16 Letters.

17 Q. Okay. I'm going to show you one
18 more supplement here I'll mark as Exhibit 8.
19 This is the same title as the other
20 supplements --

21 (Whereupon, Exhibit Felsher 8 was
22 marked for identification.)

23 BY MR. RYAN:

24 Q. -- Dean W. Felsher - Additional
25 Materials Considered for the February 2025

1 Specific Causation Expert Report in the Scott
2 Keller case.

3 Do you recognize this as a
4 supplement you made for the Keller case?

5 A. Based on the title of the document,
6 that appears to be the case.

7 Q. Okay. And this is the -- for
8 Exhibit Number 8, I believe, it's the same
9 publication that you supplemented in the Hill
10 case, right?

11 A. That appears to be the case.

12 Q. Okay. From my understanding this
13 was also served on April 24, 2025. That would
14 have been, what, two days after the previous
15 supplement for Exhibits 5 and 6.

16 Does that sound right?

17 A. I wouldn't know when you received
18 the document, so I wouldn't know if it sounds
19 right, but if that is the date you received it,
20 I don't have a reason to think that you wouldn't
21 tell me the date that you received it.

22 Q. Understood.

23 And from your recollection this
24 would have just been an additional publication
25 that you found after you served the Hill and

1 Keller reports on February 7, 2025, right?

2 A. I believe it was an additional
3 publication. I don't remember -- I don't
4 recollect the circumstance of finding the
5 publication. It more likely than not was -- in
6 this case it could have been in response to me
7 perhaps being asked a question by your colleague
8 and that I recalled this publication.

9 Q. Okay. When you say asked a question
10 by my colleague, would that have been Marcus
11 Tubin in your general causation deposition?

12 A. I think so. But I think in point of
13 fact I don't remember sitting here right now the
14 exact chronology and when I found this
15 particular document. I mean, I've been
16 reviewing hundreds of documents, hundreds of
17 papers, and I do lots of different things other
18 than work on this particular case, and I can't
19 remember the context in which I found this
20 particular document.

21 But I do know that I take addressing
22 your questions of the lawyers on the plaintiff
23 and the defense counsel very seriously and do my
24 effort to be a very thorough expert, and there
25 are times where I'll recall science or

1 literature based on questions that I'm asked,
2 and I can't remember the context of this
3 particular paper.

4 Q. Okay. It looks like the publication
5 by Lin-Zhou, it looks like it was published in
6 2023.

7 Do you see that?

8 A. It does, and actually it's published
9 by Lin. Zhou would be the second author. But
10 that's okay, you can say Lin and Zhou et al.

11 It does look like it was published
12 in 2023.

13 Q. Okay. Is there any reason why this
14 literature wasn't included in your materials
15 considered on February 7th?

16 A. Not that I recall right now. And I
17 don't recall the circumstances sitting here
18 right now. I didn't review this paper before
19 today's deposition. It's possible this came up
20 as something that I recalled in addressing some
21 other question or issue.

22 Certainly when I review science I'll
23 be made aware of other publications sometimes by
24 simply my complex brain of having looked at
25 thousands of papers will recall that I've seen

1 something that I had not mentioned that is worth
2 incorporating in my reliance. But sitting here
3 today I can't tell you there's a particular
4 reason I recall.

5 Q. Okay. And did you find this
6 literature in your own search, or was this
7 provided to you?

8 A. Well, in point of fact I don't
9 recall sitting here the paper, and I hadn't
10 reviewed it, so I don't know for sure, but I
11 believe that -- I believe it's -- more likely
12 it's something that I found, but I don't recall
13 when -- I don't recall exactly the
14 circumstances, like I've already testified.

15 Q. Okay. I've got one more exhibit on
16 a supplement, then we can get off this, I
17 promise.

18 A. You're welcome to ask any questions,
19 of course, and I'm trying to answer as best as I
20 can.

21 Q. I appreciate that.

22 A. Of course.

23 Q. I am handing you what I am marking
24 as Felsher Exhibit Number 9.

25 ///

1 (Whereupon, Exhibit Felsher 9 was
2 marked for identification.)

3 BY MR. RYAN:

4 Q. This is a document entitled Dr. Dean
5 W. Felsher - Additional Materials Considered for
6 the February 2025 Specific Causation Report of
7 Plaintiff Bruce Hill.

8 Do you recognize this as a
9 supplement you made for your Hill report?

10 A. I don't remember the document, but
11 it -- I don't -- sitting here, I don't remember
12 this document specifically, but I do see that
13 it's entitled Additional Materials Considered,
14 and I recognize the description of some of the
15 other reports as reports that had been provided
16 that I had at some point reviewed.

17 Q. Okay. Would you recall that this
18 was served on July 1, 2025?

19 A. I didn't know when this had been
20 served. If that's the fact, then I don't
21 challenge that fact. I wouldn't have known when
22 it was served.

23 Q. Okay. Exhibit 9, it has -- lists
24 eight additional expert materials that you
25 considered for the Hill report, is that right?

1 A. I see eight documents of expert
2 materials listed, correct.

3 Q. Okay. And so item number 8 on
4 Exhibit 9, it says, "Rough transcript from the
5 May 12, 2025 deposition of Dr. Peter Shields."

6 Do you see that?

7 A. I see where you're reading.

8 Q. Okay. Can you tell me what
9 specifically you considered in this transcript
10 in relation to any opinion you have in the Hill
11 case?

12 A. Well, sitting here, I recall only
13 briefly looking at this document and, you know,
14 asked in such a general way, I don't remember in
15 particular there's something to recall
16 necessarily. There could be something -- if
17 there's something specific you want to show me
18 and ask my opinion, you're welcome to.

19 Q. I'm just asking in a general sense,
20 you listed that it was a supplemental expert
21 material that you considered, and it just says
22 rough transcript from the deposition of Peter
23 Shields, doesn't provide any further
24 information.

25 So I'm just wondering if there's

1 anything specific that you considered for your
2 opinions in the Hill case.

3 A. There may or may not have been. I
4 mean, sitting here right now, I don't recall. I
5 didn't memorize the document. I don't believe
6 anything that I saw changed an opinion I had. I
7 may have opinions about specific aspects of what
8 Mr. Shields said in his deposition, but I can't
9 recall.

10 I mean, I'd have to be shown
11 something specific and I could tell you whether
12 or not it changed an opinion or whether or not I
13 had an opinion.

14 Q. And speaking of the rough transcript
15 for Dr. Peter Shields, was that provided to you
16 by counsel?

17 A. I believe so.

18 Q. Okay. Sorry, go ahead.

19 A. I mean, as much as I understand,
20 Mr. Ryan, I would have been provided it, I
21 assume that came from counsel. I assume you
22 mean the plaintiff counsel. I don't believe
23 I've had any direct communications with anybody
24 at the Department of Justice providing me with
25 transcripts.

1 If you're asking me if I've talked
2 to Dr. Shields, I haven't.

3 Q. Okay. So Exhibit 9, it also lists
4 five additional literature materials, right?

5 A. I see that there's five additional
6 literature materials.

7 Q. Was this literature provided to you,
8 or is this something you researched and found
9 yourself?

10 A. I don't remember for sure, but I
11 believe it's all material that I found -- just
12 there's five papers and I'm not seeing -- you're
13 not giving me the actual papers. But let me
14 look and see.

15 So as much as I can recall, these
16 are papers that I found addressing aspects of
17 the question in terms of the mechanism by which
18 benzene can be a cause of cancer, based on just
19 looking through additional medical and
20 scientific literature that was there, but I had
21 done some additional analyses.

22 Q. A couple of these five publications,
23 they have dates that are before your initial
24 Hill report. So looking at number 2, the
25 publication looks like it's dated 2017, and

1 number 4 is a publication that looks like it's
2 dated in 2015. Number 5 has a publication date
3 of 2019.

4 My question for you, is there any
5 reason why this wasn't included in your
6 materials considered in your initial Hill
7 report?

8 A. What I'll say generally is that I
9 don't recall a reason for not including, and I
10 can't remember sitting here right now the
11 chronology of when these papers came to my
12 thinking as additional papers to be considered.

13 But I've read thousands of papers.
14 I'm an editor of three or four journals. I've
15 published hundreds of papers. I run five
16 different programs and go to hundreds of
17 meetings. So it's hard for me to recall exactly
18 when I'll see a particular paper and recall the
19 chronology of when I thought about bringing this
20 to the attention.

21 If there's a question about a
22 specific paper, we can look at the paper and I
23 can tell you about the paper.

24 Q. Okay. And your July 1st supplement,
25 Exhibit Number 9, it lists some six additional

1 plaintiff records on the second page.

2 Do you see that?

3 A. I do.

4 Q. Okay. Looking at number 6, it shows
5 additional plaintiff records that's titled Bates
6 label 28_HILL_DPRIS, D-P-R-I-S, pages 2 to 346,
7 is that right?

8 A. You read part of that correctly. I
9 mean, I see the part you're reading of the
10 document title.

11 Q. Okay. Can you tell me what
12 specifically you considered in these records in
13 relation to any opinion you have in the Hill
14 case?

15 A. Most of these records are medical
16 records, and I had alluded to this already, that
17 he was part of the VA medical system, which in
18 my mind are example of me reviewing what would
19 be considered part of his military records.
20 It's the VA, his medical care for the military.

21 And I have been a VA doctor and
22 taken care of our vets as a big part of my
23 career, and helped vets get medical benefits and
24 disability claims over the history of my career.

25 Those documents, you know -- I

1 haven't memorized them, but those are
2 undoubtedly going to be medical records,
3 probably the more recent records we've already
4 talked about.

5 The housing record, offhand I can't
6 remember based on the title. If you show me the
7 document, I can tell you how I considered it.

8 But the medical records would have
9 all been talking about Mr. Hill's most recent
10 medical care. He had a CAT scan. He's had
11 blood counts tested. There are concerns about
12 progression of his disease. He has multiple
13 other medical problems that have been worsened
14 or caused by his disease and by the treatment of
15 his disease, and these would just -- I believe
16 these are -- I can't tell because they don't
17 include the dates.

18 You know, as a physician we don't
19 use Bates numbers in our medical records, and
20 the titling system I didn't memorize. But I
21 believe that's -- what I recall is included in
22 these records more likely than not.

23 Q. And so item number 6, these housing
24 records, did you review these when preparing
25 your initial Hill report on February 7, 2025, or

1 were these reviewed after?

2 A. Well, since I don't recognize the
3 title and I don't have the document before me,
4 and Bates numbers are not something I memorize,
5 I'm being honest with you to say I don't
6 remember what that is, so I can't remember when
7 I reviewed it.

8 Q. Understood.

9 Okay. I have just one last thing
10 for the Keller case, and then I think we can
11 just take a break.

12 I'm showing you what's been marked
13 as Felsher Exhibit Number 10.

14 (Whereupon, Exhibit Felsher 10 was
15 marked for identification.)

16 BY MR. RYAN:

17 Q. This is an Additional Materials
18 Considered for your February 2025 Specific
19 Causation Report of Scott Keller.

20 Do you recognize this as a
21 supplement you made for your Keller report?

22 A. Well, I see that's what it's titled.
23 And these actual document is probably based on a
24 list made where I got help making the actual
25 physical document, but I recognize the list of

1 expert materials as examples of documents that
2 I've been provided and reviewed.

3 And I see the list of publications
4 and medical records. I can't tell what they are
5 just based on the title and Bates numbers, but
6 it appears consistent that I received additional
7 medical records.

8 Q. Okay. And under "Expert Materials"
9 of Exhibit 10, there's number 6, it has a -- you
10 considered a rough transcript from a May 12,
11 2025 deposition of Peter Shields.

12 This was the same supplement you
13 made for Mr. Hill, right?

14 A. I believe, as much as I can tell
15 from the single line, that I'm referencing the
16 same deposition of Peter Shields that I was
17 provided.

18 Q. Okay. And sitting here today, is
19 there anything you recall that you considered in
20 the deposition of Peter Shields specifically for
21 any opinion you have in the Scott Keller case?

22 A. Well, like I described in the case
23 of Mr. Hill, I didn't memorize the document. I
24 had a chance to review it. If there's a
25 question about something specifically

1 Dr. Shields said, you'd have to show me the
2 testimony and I could give you an opinion.
3 Undoubtedly I'd have thoughts and opinions.

4 But I don't sitting here today have
5 memorized the document or know the constellation
6 of thoughts and opinions I would have in
7 relationship to what Dr. Shields said.

8 Q. Okay. So these three supplements
9 that we went over between Exhibits 5 through 10
10 for the Hill and Keller case, would you say that
11 these are all the materials you considered in
12 forming your opinions in the Hill and Keller
13 cases?

14 MR. LEE: Objection to form.
15 You can answer.

16 THE WITNESS: Well, the way you
17 said it -- the way you say that, I
18 couldn't say it's everything I considered,
19 because as I described to you, I've been a
20 professor, physician for decades, I've
21 spent decades understanding and studying
22 the science of cancer, and I couldn't
23 possibly tell you every document, every
24 publication that is part of my training
25 and experience.

1 I provided what I think is
2 reasonable. I couldn't list everything
3 possible. It would be hard for me to even
4 recollect every example of every important
5 paper.

6 If I were to list for you just
7 simply every Nobel Prize winner I
8 personally know, I'd find it challenging
9 because it's been 26 years, and I've been
10 around a lot of really talented people,
11 much to my humility. I mean, there's a
12 lot of really talented people. So I
13 wouldn't tell you.

14 But I provided you as best as I can
15 an effort to a reasonable amount of the
16 documents I reviewed in terms of the
17 medical records, the testimony, government
18 documents and publications.

19 And these supplemental reports were
20 certainly my effort to bring up-to-date
21 any additional expert materials or medical
22 records I provided, and in some cases I've
23 brought additional medical literature to
24 bear that were considered in my opinions.

25 But I have lots of opinions, and

1 you're welcome to ask me and I'll give you
2 my opinions on anything that you ask me
3 about that I'm capable of based on my
4 expertise.

5 BY MR. RYAN:

6 Q. In terms of the documents and
7 materials you considered, did you read those
8 yourself?

9 A. I'm confused. As opposed to what?
10 What is it that you're asking me?

11 Q. Yeah, I'll ask a better question,
12 then.

13 Were these documents that you were
14 provided summaries of by someone else, or were
15 these documents that you personally reviewed and
16 analyzed?

17 A. Well, there are a lot of documents,
18 so -- and I can't recollect all of them sitting
19 here, that I've been provided.

20 The medical records -- so I can --
21 the ones I can recall, I mean, I'm not going to
22 go through everything, but the medical records I
23 reviewed, the scientific papers I believe on my
24 reliance list, or materials considered -- I
25 wouldn't say reliance because I include

1 documents I wouldn't consider reliable
2 necessarily, or parts are not reliable, but my
3 additional -- my materials considered I
4 reviewed.

5 I've already described to you that I
6 provided expert reports. In some cases, I can't
7 tell you that I've had enough time to read --
8 the Department of Justice has provided hundreds
9 of pages of expert reports, and I've tried to
10 review them, but it's been challenging how many
11 experts.

12 You've elicited very copious,
13 copious opinions, but I don't recollect -- if
14 there is a summary somewhere that had been
15 provided and vaguely what that means, I don't
16 recollect that there's -- could be in some cases
17 there was some kind of information provided to
18 me that might encompass the word "summary," but
19 not that I recollect right now. Certainly not
20 regarding the medical information and the
21 scientific publications.

22 Q. Were you provided any summary of the
23 medical records for Mr. Hill or Mr. Keller?

24 A. So I don't know what that would
25 encompass, but there -- it's possible that some

1 of the documents or something I was provided
2 included some kind of information that might
3 encompass that you would call a summary, but
4 right now I'm not recollecting something.

5 If you have a question about
6 something specifically, please bring it to my
7 note. I'll tell you whether or not it's
8 something I've seen.

9 Q. So, for example, the summary of
10 medical records could be what we commonly call a
11 medical chronology. Perhaps you've seen that in
12 your practice.

13 Were you provided any medical
14 chronologies of Mr. Hill or Mr. Keller?

15 A. I may or may not have been provided
16 a chronology. Sitting here, I don't remember.
17 There are times where I've been provided a
18 chronology or there will be some additional
19 dates and times that have been provided.

20 If there's something specific that I
21 mentioned here, if you show it to me I can tell
22 you whether or not it's something that I
23 reviewed.

24 Q. Sure.

25 Okay. So on Exhibit Number 3, this

1 would be the amended Hill report.

2 A. Yes, Mr. Ryan.

3 Q. On page 11.

4 A. I'm at page 11.

5 Q. Okay. Towards the bottom it has a
6 section "Bruce Hill Medical Diagnosis and
7 Causation," and there is a subsection called
8 "Medical Summary, Medical History."

9 Do you see that?

10 A. Yes.

11 Q. Okay. So over the next couple pages
12 your amended report walks through his medical
13 history from his treatment with doctors.

14 Is that fair to say?

15 A. I believe that's in part what's
16 included here.

17 Q. Okay.

18 A. That's what it looks like based on
19 my recollection.

20 Q. So the medical summary of Mr. Hill
21 listed starting on page 11, would that have been
22 information of his medical care that you
23 reviewed through medical documents personally,
24 or would this have been through medical
25 summaries or chronologies that were provided to

1 you?

2 A. I see.

3 Well, I don't remember whether or
4 not at any point I did or did not receive any
5 summary. I do know that I reviewed his medical
6 records, so I would say if there's something
7 here specifically you could ask me, but I
8 believe this is, to the best of my knowledge, an
9 accurate summary as much as any medical record
10 can be an accurate summary. There can be
11 vagaries about information. But I believe this
12 provides a summary of his medical history.

13 Q. Okay. So sitting here today, you
14 couldn't tell me exactly whether any portion of
15 the medical history for Mr. Hill was obtained
16 through any medical summaries?

17 A. Well, I recall that -- I recall that
18 there were maybe in some cases some details --
19 there were a couple of details that were
20 provided to me. I don't know if they were a
21 medical summary. So you'd have to point to
22 something that you're asking about.

23 I mean, to me this, as much as I
24 recall, and I haven't looked at this for -- I
25 haven't looked at the medical history part in

1 detail for months, this is an as accurate as
2 possible account that -- of what his medical
3 records reflect.

4 I mean, often pieces of the records
5 include material that I could directly glean
6 from summaries written by his physicians, if
7 that's what you're talking about in terms of a
8 summary.

9 I mean, I don't -- I didn't rewrite
10 his entire medical history. His medical history
11 was through, like, the documents that I
12 reviewed, and in some cases these were simply
13 largely copied and put into a context that made
14 them into a readable history, because sometimes
15 the medical records are very difficult to put in
16 a manner that you can read as a story because
17 there's multiple physicians involved and taking
18 different pieces from different physicians.

19 Q. Okay. And in your Keller report,
20 there's a similar section that's titled "Medical
21 History."

22 A. Yes.

23 Q. Would there be any sections of that
24 medical history where you were provided
25 summaries of medical records?

1 A. Again, it's possible. I can't say
2 sitting here now, and "summary" is pretty broad
3 and vague. Certainly the medical records
4 themselves are usually for some of these so
5 complicated summaries, and certainly in that
6 context.

7 Now, thinking about it, I'd say,
8 well, I certainly saw in the medical records
9 what I would say to a non-physician were
10 summaries. It wasn't that the records reflected
11 that each time they talked to Mr. Hill and
12 individually rewrote his medical history.
13 Largely the medical records appear to be just a
14 recapitulation of what previously had been said
15 and adding additional details.

16 And I think this reflects the nature
17 of how the medical records are documented
18 generally by his physicians.

19 MR. LEE: When you get to a good
20 point, let's take a break.

21 MR. RYAN: Yeah, that's exactly
22 where I was going.

23 Sure, let's take a break.

24 MR. LEE: Five minutes.

25 THE VIDEOGRAPHER: Going off the

1 record at 10:21 a.m.

2 (Whereupon, a recess was taken.)

3 THE VIDEOGRAPHER: We are back on
4 the record at 10:33 a.m.

5 BY MR. RYAN:

6 Q. Okay. Dr. Felsher, attached to your
7 Hill and Keller reports there's a copy of your
8 CV, right?

9 A. What I recollect is that some of
10 the -- in point of fact, like two of them have
11 my CV and the one of them didn't for the
12 document, just as a point of fact.

13 Q. Yeah.

14 A. My CV is on two out of the three
15 documents you provided me today.

16 Q. Okay. From what I understand, your
17 initial Hill report, which is Exhibit 2, and
18 your Keller report, which is Exhibit 4, they
19 attach a CV, is that correct?

20 A. If that's factually correct, I can
21 look, but I know that two out of the three, yes.

22 Q. Understood.

23 Okay. And so the CV that is
24 attached to your Hill and Keller reports --

25 A. Yes.

1 Q. -- does that accurately set out your
2 education, training, and experience?

3 A. I believe it does, with the caveat
4 that my record is constantly is being updated.
5 And what I see is the date is September 30,
6 2024, and there would be possibly -- well, there
7 would be likely additional publications and
8 additional -- there would be additional
9 presentations given.

10 And it's possible I've taken on an
11 additional leadership role, but there's nothing
12 not -- I'm not intentionally not disclosing
13 something. It's just that as a senior
14 professor, my responsibilities are continually
15 evolving as I'm given different
16 responsibilities.

17 It doesn't list that I actually was
18 one of the five faculty reading out the names of
19 people who were graduating from the medical
20 school, but I was given that honorific of being
21 somebody who's part of the actual -- but I can't
22 recall, other than what I just described to you.
23 The basic facts of my education certainly
24 historically should be the same as -- now as
25 they were in 2024.

1 Q. Okay. Sitting here today, is there
2 anything you'd want to update on your CV?

3 A. Well, I'll provide you an updated
4 CV. It will have whatever publications and
5 presentations I've given. There's no reason not
6 to provide that to you if you request it.

7 Q. Okay. Yeah, I would -- if there's
8 anything that is updated that would make the CV
9 attached to your Hill and Keller reports not up
10 to date, then, yeah, please provide it to us.

11 A. My CV is always updated, so I can
12 always provide you an update. I'll do the best
13 I can. It seems reasonable for you to request a
14 document from 2025.

15 Q. Okay.

16 MR. RYAN: Randy, if there's any
17 update --

18 MR. LEE: Yeah, we'll provide it.
19 If there is so, we'll take care of it.

20 MR. RYAN: Appreciate that.

21 BY MR. RYAN:

22 Q. Okay. Dr. Felsher, I understand
23 that you are an oncologist, right?

24 A. That encompasses part of what I am,
25 yes.

1 Q. And what else, what other aspect of
2 what your profession is?

3 A. Well, I have an MD and a Ph.D. I'm
4 trained as a medical oncologist. Albeit at
5 Stanford when I was clinically active, I was
6 doing what also would encompass hematology, but
7 the vagaries at Stanford are that oncology and
8 hematology are separate divisions.

9 I'm also faculty in medicine and
10 pathology. I have an appointment in the
11 molecular imaging program, so I'm associated,
12 I'm not considered formally faculty, but
13 definitely they consider me part of the
14 associated faculty of radiology.

15 I'm also the director of TRAM, TRAM
16 scholars, TRAM masters, TRAM arts, TRAM
17 laboratory, TRAM task.

18 I'm also the director of admissions
19 for the MSDP.

20 I'm also the co-MPI, I guess is
21 their strict name, of the CTSA, which is the
22 grant and the mechanism that is responsible for
23 all of clinical research at Stanford as directed
24 by the dean's office.

25 So I have multiple hats that I wear,

1 mainly involved in either doing medical
2 research, largely oncology, directing other
3 people how to do medical or clinical research,
4 educating people.

5 And the focus of my research
6 encompass many areas of cancer, including
7 clinical oncology, basic science, translational
8 developing therapeutics, mechanisms,
9 carcinogenesis.

10 So I don't think I said I also am a
11 codirector of a cancer nanotechnology program.
12 But that's another hat. I probably have other
13 hats that I wear, too, but those are the main
14 ones.

15 Q. Okay. You mentioned TRAM arts, TRAM
16 a couple times. What is TRAM?

17 A. TRAM is the Translational Research
18 and Applied Medicine. Basically I decided that
19 Stanford needed a center that would make it
20 easier for us to take medical research and make
21 it useful to all of us in this room -- well, not
22 just in this room, but to everyday people -- to
23 develop better treatments, diagnostics, to
24 develop new technologies, and facilitate the
25 ability of different kinds of medical doctors

1 and different kinds of scientists and engineers
2 and chemists to work together.

3 I've funded 150 different projects.
4 I've trained hundreds of people. I have built
5 the first graduate program in translational
6 research. I host symposium. I host leaders in
7 academia to come to Stanford. I allow leaders
8 in Stanford, baccalaureate deans, president of
9 the university, world-class basic scientists,
10 clinical researchers to present their findings.
11 So it encompasses all those aspects.

12 It often allows me because I do this
13 to have much broader understanding of not just
14 the science, but also to understand issues of
15 regulation, issues of intellectual property,
16 issues that relate to many different other
17 aspects that not all physician scientists would
18 necessarily consider part of their wheelhouse of
19 what they do day to day.

20 Q. You mentioned --

21 A. Oh, one other thing. I forgot. I
22 also am on the carcinogen investigation
23 committee of the California EPA, so I spend time
24 now as directed by the California EPA -- they
25 don't call themselves EPA, they call themselves

1 the OEHHA, for some reason they have a different
2 name -- and I provide advice, guidance,
3 evaluation of whether or not based on a legal
4 standard, proposition passed by Proposition 65,
5 whether or not certain agents are carcinogens.

6 Q. How long have you been in that role
7 with the OEHHA?

8 A. I'm in my second year in that role
9 formally. I think they asked me four years --
10 something like three-and-a-half years it took --
11 well, you would know this better than me maybe,
12 but it took over a year for Governor Newsom to
13 find time to personally have reviewed and say,
14 yes, we'd like Dr. Felsher.

15 I mean, I was invited directly by
16 the director of the California EPA, and then
17 filled out the application, and it took a
18 long -- they told me it would take a long time.

19 Q. Congratulations on that.

20 A. I appreciate that. I'm, like you,
21 doing a government service which I admire and
22 appreciate and value. I feel proud of myself
23 for doing a service that is for the government
24 and for the better of people.

25 Q. You mentioned earlier an acronym

1 MPI. Can you just define what that is?

2 A. I'm sorry, it's silly I use the
3 acronym. Of course.

4 Q. We all use them in government.

5 A. Yes. Multiple principal
6 investigators. The principal investigator is
7 the name we use for the individual who in a
8 grant, in this case National Institute of Health
9 grant, funded who are the professors who are
10 considered the primary people responsible for
11 the research described.

12 And the CTSA is the largest grant
13 that the Stanford Medical School -- or most
14 medical schools have. And I serve with Ruth
15 O'Hara, the senior associate dean of research,
16 and Manisha Desai, who is also a professor --
17 they are both also professors, but she is also
18 head of the QSU, the Quantitative Services Unit.
19 And together we bring our different strengths to
20 make sure that medical and clinical research and
21 education is done as well as possible at
22 Stanford.

23 Q. Okay. So in terms of your roles
24 currently, you're not an epidemiologist, right?

25 A. Well, I wouldn't say that. I would

1 say I may not use the word and introduce myself
2 as an epidemiologist in the list, but in point
3 of fact I often am asked to consider or review
4 epidemiology that in my role in the CTSA, that
5 one of the functions I have served is to work
6 with colleagues in epidemiology to make sure
7 that our younger professors have the -- know the
8 methodology for conducting clinical studies that
9 include epidemiology.

10 The chair of epidemiology is a
11 colleague of mine, and Melissa Body is a
12 wonderful person, I know her personally, we
13 interact. She's actually brought a lot of
14 strength to our epidemiology at Stanford.

15 So I would say, like a lot of areas
16 of science, it might not be the first thing I
17 would say, but I take for granted that I've been
18 trained and have more than a layperson's
19 understanding of epidemiology.

20 Q. You're not a toxicologist, are you?

21 A. Again, similarly I would say -- I
22 wouldn't per se use the word "toxicology," but
23 if you ask me did I have an understanding that
24 toxicology sort of relates to cancer and
25 carcinogenesis, yes, lots of the areas of what

1 are considered toxicology I would have
2 expertise.

3 I'm not going to call myself in a
4 courtroom per se a toxicologist, but I'd say I
5 have more than a layperson's understanding of
6 many aspects of toxicology.

7 Indeed I have had toxicologists come
8 to my laboratory to learn how to do cancer
9 research, so certainly -- and I've never told a
10 lawyer that. I never thought about that, that I
11 have a toxicologist who trained in toxicology
12 come to my laboratory saying, you know, Dean,
13 Dr. Felsher, I want to train to learn about how
14 to do medical research in cancer, and I'm a
15 toxicologist. Fantastic. You know, welcome.
16 You know, appreciate you bringing your
17 perspective. And this person is now a professor
18 doing cancer research.

19 Q. Dr. Felsher, would you consider
20 yourself a cardiologist?

21 A. I wouldn't call myself a
22 cardiologist, but what I would say is I also
23 have more than a lay understanding of
24 cardiology. But in this case I would say I'm
25 not going to give an opinion in cardiology, but

1 certainly I have more understanding because I am
2 trained as an internist.

3 And in the TRAM program, of those
4 150 grants, I would guess -- or proposals that
5 we funded that are like mini grants, I would
6 guess that probably at least a third of them or
7 a quarter of them were actually cardiology
8 grants.

9 Q. Are you board-certified in
10 cardiology?

11 A. No.

12 Q. Okay.

13 A. No, I did not do a fellowship in
14 cardiology. I did a fellowship in hematology
15 oncology.

16 Q. And in your clinical practice did it
17 include any specialization in diagnosis and
18 treatment of heart and blood vessel conditions?

19 A. Well, of course it did. My training
20 in internal medicine, a good part of it was
21 actually managing patients with problems in
22 cardiology.

23 In fact, I remember when I was the
24 senior house staff in the cardiac intensive care
25 unit, my attending tried to recruit me to become

1 a cardiologist, and I considered it.

2 But, no, I'm not going to say I did
3 a fellowship in cardiology. I'd say I have the
4 understanding that you would expect and the
5 skill level of somebody who is trained at top
6 medical centers, and in particular as it relates
7 to being an oncologist where many of our
8 patients do have cardiologic problems, and they
9 certainly have problems related to therapy or
10 secondary to the kind of cancer they have, or
11 they have other concordant issues that can
12 relate to them having cardiac problems. I would
13 say that I have more of a layperson's --
14 certainly much more than a layperson's
15 understanding.

16 Q. You wouldn't consider yourself an
17 endocrinologist, would you?

18 A. Only in the sense I've described,
19 that I trained I trained in internal medicine,
20 and endocrinology is usually handled by an
21 internist, other than fairly particular
22 problems. For example, diabetes is usually
23 handled by a general practitioner, not an
24 endocrinologist.

25 In fact, the field of endocrinology

1 largely is dying. It's mainly an academic
2 field, though it's a wonderful field, very
3 fascinating, loved learning endocrinology.

4 I vividly remember when I first
5 learned at University of Chicago from a
6 world-class endocrinologist, I took a class in
7 endocrinology. Absolutely fascinating. Great
8 science.

9 Q. You're not board-certified in
10 endocrinology, are you?

11 A. No. I didn't do a fellowship
12 training in endocrinology. My training is at
13 the level of an internist. So certainly I
14 boarded in internal medicine, and endocrinology
15 would have been a significant part, along with
16 cardiology. Those are two areas that are very
17 commonly primarily managed by general doctors.

18 Q. You're not a nephrologist, are you?

19 A. No, regretfully. I love nephrology.
20 In fact, an attending tried to recruit me in
21 nephrology as well. Certainly I'm aware of
22 problems of the kidney and how they relate to
23 cancer and oncology and cancer treatment, since
24 often an important consideration in the
25 management of patients with cancer are concerns

1 related to their kidney and kidney function and
2 how therapeutics or cancer can lead to kidney
3 failure and other problems with the kidney,
4 toxicity.

5 Q. And you wouldn't have a board
6 certification or any fellowships in nephrology?

7 A. No. I did not do specialized
8 training, albeit nephrologists who board
9 nephrology usually are dealing with end-stage
10 renal disease and dialysis and specific issues.

11 One of my buddies from medical
12 school specializes in cachexia as a professor at
13 Harvard. That's usually what academic
14 nephrologists or specialists in nephrology deal
15 with.

16 Problems in the kidney that relate
17 to oncology or cancer I'm certainly familiar
18 with. It's considered part of a general part of
19 what you need to know as an oncologist since
20 many of the chemotherapeutics we give are
21 eliminated by the kidney, or the kidney can be
22 damaged. There needs to be consideration to
23 understanding kidney function, how to deal with
24 considerations of early or chronic kidney
25 disease or complications associated with an

1 individual who has kidney disease.

2 Q. Okay. You're not a biochemist, are
3 you?

4 A. I did not do a Ph.D in biochemistry.
5 However, in my work as a scientist I certainly
6 incorporate biochemistry continuously. I mean,
7 most of the principles have been -- I did my
8 undergraduate research in a biochemist lab in
9 entomology. The research that I do involves
10 cellular signaling that is biochemistry. I
11 study lipogenesis, lipid metabolism, that is
12 biochemistry. I study cytokines and cellular
13 receptors, that's biochemistry.

14 So I would say I have much, much
15 more than a layperson's understanding of
16 biochemistry.

17 Q. Certainly more than me, I would
18 assume.

19 A. Well, I'm not making any
20 presumption, but the Stanford biochemistry
21 department, like, they're all members of the
22 national academy, three of them have won Nobel
23 Prizes.

24 I was recruited by Paul Berg to come
25 to Stanford. He passed away a few years ago.

1 He won the Nobel Prize in biochemistry. Arthur
2 Kornberg won the Nobel Prize in biochemistry.

3 I remember being invited to give a
4 talk in the biochemistry department at Stanford.
5 They said, Welcome to Stanford. I had been
6 there for five years, but they didn't consider I
7 had arrived until I had already published a
8 couple of papers that had been widely cited and
9 considered to be, quote, seminal work, end
10 quote, and then I was like, Oh, you're here.

11 So facetiously those sort of
12 biochemists would consider none of us
13 biochemists, but, yes, I would say you would
14 probably say, yes, Dean Felsher could probably
15 teach easily biochemistry in an undergraduate
16 class based on my experience. I won't do it
17 because there's biochemists who would say, We'll
18 do it, Dean, we'll let the assistant professor
19 in biochemistry do it.

20 Q. You wouldn't have any professional
21 credentials or any certifications in
22 biochemistry, right?

23 A. Lots of credentials related to
24 chemistry. My undergraduate degree was in
25 chemistry. I've literally collaborated with

1 almost all of the chemistry department at
2 Stanford, Chaitin Khosla, Carolyn Bertozzi. She
3 won the Nobel Prize, but we published a paper
4 together. Nathaniel Craig deserves the Nobel
5 Prize. Paul Wender, Dick Zare.

6 I mean, if you look at my
7 publications you'll see that I often do
8 chemistry, medicinal chemistry, therapeutic
9 development. Most of it I can't talk about
10 because it's not published and involves
11 intellectual property, but we've developed many
12 novel chemical approaches, nanoparticles. I
13 mean, it's a big part of my career.

14 Q. You wouldn't consider yourself a
15 pharmacologist, would you?

16 A. No. Only as it relates to oncology
17 and as an internist. But I would say that's a
18 discipline that I wouldn't say -- I probably
19 have much more than a layperson's understanding,
20 so I'd have some expertise, but I have not done
21 research specifically.

22 Albeit, in a medicinal level I
23 understand pharmacokinetics, how to determine
24 issues in improving drug delivery, because these
25 are all intimately connected with chemistry and

1 all the therapeutic development I'm doing, and
2 I've advised several dozen biotech companies.

3 And often we -- I guess I do know
4 pharmacology in that respect because I've
5 probably several dozen times done work where
6 we've helped evaluate the pharmacological
7 properties of a therapeutic that somebody was
8 trying to develop for people.

9 Q. Okay. You're not a statistician,
10 are you?

11 A. I don't have a degree in statistics,
12 but there's not any work, research that I do or
13 scientific paper I review or grant that I
14 publish, where there isn't statistics. So I
15 have more than a layperson's understanding.

16 We've used computational biology,
17 AI-based computational biology, coordinate
18 differential equations, systems biology. And
19 then we've used conventional statistical
20 methods, power calculations, routinely every day
21 in my laboratory research program.

22 Most of the simple statistics or the
23 more complex in describing, I have teams of
24 individuals who are part of my research
25 enterprise that will actually provide the actual

1 detailed analysis.

2 I alluded to the QSU, the
3 Quantitative Services Unit. I just talked with
4 them yesterday. We gave them part of a grant.
5 Naively the assistant director asked me if I had
6 heard of them. I'm personally friends with
7 their boss who teaches for me and teaches our
8 translational graduate students about
9 statistics.

10 Q. Okay. And then looking specifically
11 in this case for Mr. Hill and Mr. Keller, you've
12 never clinically examined Plaintiff Bruce Hill,
13 have you?

14 A. I have not physically examined,
15 correct, if that's what you're asking me.

16 Q. Correct.
17 And have you physically examined
18 Plaintiff Scott Keller?

19 A. No, I have not.

20 Q. So your understanding of their
21 medical treatment in this case would have been
22 limited to your review of the materials and
23 medical records?

24 A. Well, that included that. I also
25 have testimony, other expert reports, and I

1 believe those are sufficient for the opinions
2 that I've provided in my reports.

3 Q. You haven't performed an independent
4 medical examination of Mr. Keller or Mr. Hill,
5 right?

6 A. Well, if you're asking me the same
7 question a different way, I would say yes and
8 no. True, I have not physically examined them.
9 No, what I've done would be considered a medical
10 exam.

11 In my everyday experience as an
12 expert in oncology, as a professor at Stanford,
13 I routinely will provide opinions regarding
14 issues of oncology based on talking to an
15 individual by phone or being provided records.

16 Often I'm serving as a vehicle to
17 alert somebody to a treatment or the expert in a
18 particular area of the country or a scientific
19 article or an investigator or a potential
20 therapeutic that I know about that has been
21 approved.

22 Many of these communications happen
23 in my everyday experience where I'm not able to
24 perform a direct physical interaction,
25 especially since COVID. Since COVID it's become

1 much more routine that we're providing care as
2 doctors or giving opinions or interacting with
3 people where we don't physically actually see
4 the individual. I mean, now surgeons are
5 performing remote surgery where they're not
6 actually ever physically seeing the patient.

7 So I'd say in that context and in
8 the context that's being more generally
9 accepted, that constitutes a medical exam,
10 albeit with the caveat I did not physically
11 see like I physically see you. I'm not going to
12 expect to examine you. I don't have a
13 stethoscope.

14 Q. Okay. Have you spoken with Mr. Hill
15 over the phone or through, you know, a virtual
16 conference?

17 A. No, I haven't.

18 Q. Have you spoken with Mr. Keller over
19 the phone or through a virtual conference?

20 A. No. But I'd point out that it's
21 also been in my experience as a senior professor
22 at Stanford, often the opinion I'm giving is not
23 to an individual directly contacting me, it will
24 be to a fellow leader.

25 I've had -- I'll get contacted by a

1 professor at Harvard saying, Dean, I have a
2 relative with X, can you kindly give me an
3 opinion? What do you have -- they live near
4 Stanford, who should they see? What do you
5 think? What's available? What do you think of
6 this circumstance? They might even send me some
7 medical information.

8 And I don't talk to the individual,
9 and I'm able to give an opinion, an opinion I
10 believe is reliable and has substance and value,
11 as I've done in this case.

12 In this case I have much more
13 information than that because I have many,
14 copious medical records and documentation.

15 Q. In terms of your career, you
16 mentioned earlier that -- let me make sure I get
17 this right -- there was a time where you were
18 clinically active. Are you currently clinically
19 active and seeing patients?

20 A. Not in the sense that I have my own
21 continuity clinic or that I admit people
22 directly to the hospital. In a sense that I'm
23 still a medical oncologist, faculty, I'm
24 associate chief -- I didn't mention I was the
25 associate chief of oncology, but I'm also the

1 associate chief of oncology, and I daily will
2 provide my expertise/guidance to individuals.

3 But I'm not the -- I don't now write
4 orders to admit somebody to the hospital, or
5 when somebody is in the hospital be the one who
6 writes orders, or have a clinic assigned to me
7 where individuals come see me.

8 But I continue to function as an
9 oncologist in the sense that I have expertise in
10 my domain that I, when asked questions of
11 guidance from individuals, family, friends,
12 former patients -- I would give my patients my
13 cell number. I still get texted by former
14 patients who will ask me, for example, My
15 husband now -- I'm better, but my husband has
16 cancer. This is the cancer they have. Can you
17 please recommend what we should do?

18 Well, I'll suggest generally -- I
19 won't provide care, I won't admit them -- and I
20 will refer them, Here is the individual at
21 Stanford you should go see who is seeing
22 patients, and, you know, keep me updated and
23 I'll help you in any way I can.

24 Q. Was there a time where you would be
25 the one admitting people to the hospital or, you

1 know, physically examining in a clinical sense
2 patients?

3 A. Yes.

4 Q. When was that?

5 A. So for over 20 years, and I stopped
6 sometime around -- maybe around eight years ago,
7 maybe -- I can't remember the exact date, but a
8 while ago. I stopped having a clinic, and I was
9 given in exchange -- not necessarily a direct
10 exchange, but it was obvious that I'd become a
11 senior professor, and I took on -- I was asked
12 to take on these other leadership roles.

13 You should be one of the PIs of our
14 largest grant at Stanford that we got an award
15 from the dean's office because we got such a
16 good review of our grant. We -- you should --
17 we love your program, you should expand it, make
18 a graduate program. So I made a graduate
19 program of over 30 graduates.

20 So lots of other aspects of things
21 that I did or have done. And then continue to
22 publish robustly. You know, running a research
23 program in cancer, cancer mechanisms, developing
24 therapeutics.

25 Q. In your clinical treatment

1 experience as an oncologist, you've obviously
2 treated patients with cancer, right?

3 A. Yes.

4 Q. Okay. And how many patients would
5 you say over the course of your career that
6 you've cared for with leukemia?

7 A. Well, if you include leukemia in the
8 broad sense using lay sense -- like leukemia and
9 glucemia often are actually lymphomas, because
10 most lymphomas will have a leukemic aspect, most
11 leukemics have a solid component -- I would say
12 it has to be a thousand or more.

13 My clinic's focus was initially
14 general oncology, and then it was in treating
15 leukemia and lymphoma. And I treated patients
16 with, for example, CLL, or also called small
17 lymphocytic lymphoma, which are basically
18 synonyms, and I treated patients with aggressive
19 lymphomas like immunoblastic lymphoma, and I've
20 done research in my laboratory on both diseases.

21 CLL is a disease of CD5 positive B
22 cells. This was discovered by the Herzenbergs
23 who I've known since I was an MD-PhD. When I
24 was a grad student I knew them. They remembered
25 me even when years later I was recruited as

1 faculty.

2 And immunoblastic lymphoma is a
3 lymphoma that's strongly associated with the
4 MYCN oncogene that I'm considered one of the
5 handful of experts in the world, and this
6 particular oncogene pathway that is activated in
7 cancers that has particularly been associated
8 with certain aggressive types of lymphoma and
9 leukemia, like immunoblastic lymphoma and
10 Burkitt lymphoma, and acute lymphoblastic
11 leukemia and acute lymphoblastic lymphoma.

12 And AIDS-associated lymphomas, the
13 AIDS patient's got a lymphoma that's very
14 similar or if not identical to immunoblastic
15 lymphoma.

16 So these are all areas I spent years
17 thinking about. My PhD work was on leukemia and
18 lymphoma. My lab has worked on leukemia and
19 lymphoma for 26 years. I'm part of the leukemia
20 and lymphoma program in the cancer center, or I
21 think we call it -- well, we call it the Cancer
22 Institute now.

23 Q. Okay. And specific for
24 non-Hodgkin's lymphoma, how many patients did
25 you clinically treat with that condition?

1 A. Well, to clarify for you,
2 non-Hodgkin's lymphoma, in my mind, to a
3 layperson I would say leukemia and lymphoma.
4 Many leukemias other than myeloid leukemias
5 would actually really be included in the
6 hematopoietic cancers that would encompass
7 non-Hodgkin's lymphoma, and so a thousand.

8 I also treated Hodgkin's patients,
9 but a lot, or hundreds and hundreds, too
10 numerous to count. And that's exactly what I've
11 done research. We were developing a novel
12 therapeutic that's basically for the type of
13 large cell lymphoma that would encompass
14 immunoblastic lymphoma like what Mr. Keller has.

15 Q. So speaking of Mr. Keller, he has
16 diffuse large B cell lymphoma, or DLBCL, right?

17 A. That's the general name that more
18 recently his clinicians feel he has a subtype
19 that's called immunoblastic lymphoma.

20 Diffuse large cell is a broad
21 category of generally more aggressive lymphomas,
22 and as scientists we can divide them up and try
23 to figure out different aspects, but I'll tell
24 you from my point of view in terms of causality
25 they're really one collective disease of

1 hematopoietic cancers, because I can tell you
2 that the oncogene I'm an expert in can
3 contribute to the cause of a multitude of them;
4 some of them called leukemia, some of them
5 called lymphoma, some of them called more or
6 less aggressive, some of them called
7 transformed.

8 Q. Over the course of your career, how
9 many patients would you say you've treated with
10 DLBCL?

11 A. So of the hematopoietic lymphoma
12 leukemia patients, I would guess that probably
13 about a quarter of them were more aggressive,
14 including large cell or other aggressive
15 lymphomas.

16 Q. And when you say a quarter --

17 A. Like if there was a thousand, I
18 probably did several hundred.

19 Q. Okay.

20 A. And if you included when I was a
21 resident and intern and fellow, probably many
22 more, because the aggressive lymphomas more
23 often get treated inpatient. And as I became a
24 more senior clinician, I started more
25 subspecializing in the lower grade lymphomas for

1 practical reasons. Those patients didn't
2 require as much acute care.

3 A patient with large cell lymphoma,
4 I would treat them, but they require very on top
5 of care, and much more difficult to handle if
6 you're also a professor with other
7 responsibilities and you're a researcher.
8 They're more acutely ill.

9 But I often took care of large cell
10 clinically. Certainly when I did inpatient
11 oncology, which I did for many, many years, I
12 was the inpatient attending, many a Christmas
13 holiday I was the inpatient attending running
14 the inpatient oncology unit.

15 Q. How many patients over the course of
16 your career would you say you've treated with
17 chronic kidney disease?

18 A. Many. It would be hard to estimate.
19 Chronic kidney disease unfortunately is a common
20 challenge in patients who are older who have
21 cancer.

22 So it would be a lot, but I can't
23 tell you that I -- it would be harder for me to
24 estimate what percentage. And it would depend
25 how you define it. There are different

1 categories, and nephrologists will use specific
2 categories of a degree based on GFR estimation
3 or actual measurement. Sometimes people use
4 creatinine as an estimate.

5 And I would say a lot of people have
6 kidney or chronic kidney disease who are older
7 who are cancer patients because we'll have to
8 dose adjust certain therapies because of their
9 kidney function.

10 Q. Have you previously treated people
11 with cardiomyopathy?

12 A. Yes.

13 Q. How many patients would you say
14 you've treated with that condition?

15 A. Well, if somebody has cardiomyopathy
16 secondary to cancer treatment based on a MUGA
17 showing reduced ejection fraction, that's pretty
18 common, and sometimes it's reversible.

19 And we actually serially follow
20 ejection fraction in patients receiving
21 cardiotoxic chemotherapy, particularly patients
22 with large cell lymphoma, because they often get
23 Adriamycin or doxorubicin, they're the same
24 drug, therapy, and there's a limit to how much
25 of that therapy you can give, at a point you

1 start seeing cardiotoxicity. And almost
2 everybody getting Adriamycin will have some
3 amount of toxicity.

4 So it depends how you define it.
5 True cardiomyopathy to the point where the
6 person is in consideration of going into
7 congestive heart failure, if they're an oncology
8 patient we would generally manage them if we
9 could manage them with the usual
10 over-the-counter medications. But if they
11 required more complicated therapeutics, we would
12 also refer them to a cardiologist who is used to
13 working with oncology patients.

14 And I don't have a divide in my head
15 how many, but it's a very common consideration.
16 I can tell you I never gave a patient Adriamycin
17 without checking their heart function and then
18 following their heart function. It is basically
19 hardwired in the management of these patients.

20 Q. So your experience in treating
21 patients with cardiomyopathy would have been a
22 condition secondary to their cancer?

23 A. Yes, but also I am an internist, so
24 I was trained in internal medicine and managed
25 patients with cardiomyopathy, and also I am a

1 leader developing new therapeutics.

2 And if you look up BridgeBio, you'll
3 see they just developed a new therapy for one of
4 the causes of cardiomyopathy related to a very
5 unusual disease, and I visited BridgeBio with
6 our graduate program. All their advisors are
7 Stanford professors. My previous chair is a
8 cardiologist. Ken Mahaffey is a cardiologist.

9 I mentored one of the junior faculty
10 who helped develop this therapeutic program as
11 part of my role in the CTSA, now developed this
12 research program. We talked about
13 cardiomyopathy. We talked about how you manage
14 it. We talked about how this therapy would
15 work.

16 So it's something that I wouldn't
17 say I would go treat them, but to say I don't
18 know or I'm not aware or not aware of what some
19 of the treatments or the emerging treatments --
20 I mean, I knew about the treatment that
21 BridgeBio developed before it became public
22 because I knew the scientists running the
23 clinical trial. I was mentoring them. I knew
24 their primary advisor. He came and lectured in
25 my class, but he didn't know I'd already visited

1 the biotech company to hear about their drug,
2 you know, confidentially.

3 Q. So BridgeBio is a biotech company?

4 A. Yes, right across from the Chase
5 Center, and I didn't even know that. I knew the
6 scientists didn't know it, parked in the same
7 parking lot to go to a Warriors game, and then I
8 parked there for free finally because I visited
9 and was invited to BridgeBio.

10 Q. Understood.

11 Have you previously treated patients
12 that underwent a stem cell transplant?

13 A. Yes.

14 Q. Okay?

15 A. I've ordered stem cell transplants.

16 Q. How many patients would you say with
17 stem cell transplants?

18 A. I mean, a lot. And I also in my
19 role as one of the PIs at the CTSA have mentored
20 faculty who are part of the BMT program. The
21 chief of BMT is a friend. In fact, for some
22 reason he just asked me to be connected with him
23 on LinkedIn today, even though we've known each
24 other for 20 -- literally today, he's like,
25 Dean, be LinkedIn connected to me.

1 So when I took care of large cell
2 lymphoma patients and other aggressive
3 lymphomas, when those patients fail treatment
4 they get stem cell transplants, autologous, in
5 more unusual circumstance and disease
6 allogeneic.

7 I used to -- I had learned how to
8 give those treatments as part of my training in
9 oncology. Those are done by BMT service. But
10 certainly I am aware of transplant. I know the
11 scientists. I've collaborated with them. I've
12 reviewed the science. I've asked for patients
13 who failed therapy. I've given them the pre --
14 the prep initial therapy, admitted them for it
15 before they -- and when they've responded, then
16 they've gone to transplant.

17 Q. In your clinical practice, when
18 you've had a patient with NHL or CLL, did they
19 ever ask you what the cause of their cancer
20 might be?

21 A. Literally I've seen thousands of
22 patients, and to say that I can remember every
23 time a patient asked me about issues of cause --
24 I'm sure sometimes they did, but I can tell you
25 generally that if a patient comes to you, their

1 primary concern is can you get them better.

2 And the only time I can recall
3 sitting here today where I've been asked about
4 cause is when they have taken one of my
5 scientific papers from the literature and sadly
6 have said, Dr. Felsher, you have shown this in
7 this paper, does this mean something to me? And
8 then I take it very seriously because it's very
9 personal then. They're thinking I have figured
10 out something, and I have to explain to them
11 this was science.

12 One case was a paper published in
13 the Journal of Science. It was a very high
14 profiled paper, and literally they brought the
15 science paper and said, Can this help me. And I
16 have to explain, this is science. It hasn't yet
17 gone to the patient.

18 But the vast majority of time
19 somebody comes to you and you start explaining
20 to them science, they look at you like, who the
21 hell -- I'm here, I'm dying, treat me.

22 And so even though I love science
23 and I want to come invent new treatments, my
24 priority 1 through 10 was to make that person
25 feel that I was going to treat them.

1 And that is what I teach the young
2 physicians and scientists at Stanford, go ahead
3 and do your great science, but when you go see a
4 patient, realize they're worried they're going
5 to die and there's not a treatment, and the
6 first ten words out of your mouth better relate
7 to that.

8 And so 99.9 percent of the time, I'm
9 sure that's what I did, is I was a very huggy
10 doctor, and usually patients like that. Not
11 when you first meet somebody you don't give them
12 a hug, but if they know you, I'd often say, I'm
13 going to keep you alive because I believe in you
14 and you're going to feel supported by me.

15 They were usually pleasantly
16 surprised that I was also a scientist. They
17 would say, Oh, you're actually a scientist,
18 Dr. Felsher. And I'd say, Yeah, I actually am.

19 Q. Okay. So 99.9 percent of the time
20 you would treat their symptoms as consistent
21 with their diagnosis?

22 A. And I'll qualify that. I'm
23 exaggerating because I don't know the exact
24 percent. Most of the time. Let's take away the
25 99.9. I'm being too colorful.

1 Q. Okay. So --

2 A. Most of the time I would not get
3 asked.

4 Q. So the other times where you would,
5 what would you typically tell your patients with
6 CLL, NHL?

7 A. I would actually, if possible, and I
8 did know there was something I knew about a
9 cause, I would tell them. For example, I had a
10 patient who was a vet, he was a Special Forces,
11 and he got exposed to radiation in a submarine
12 and got lymphoma. And I said, Your lymphoma was
13 undoubtedly a major cause because you were
14 exposed to radiation, and I'm sorry about that.

15 But most of the time I wouldn't know
16 if they asked me. For example, I think since
17 1974 or somewhere around that time people knew
18 there was an issue of contamination at Camp
19 Lejeune, at least that's what I saw, there are
20 documents saying there was some worry, and if I
21 saw something from Camp Lejeune, I know that I
22 did not know in 19 -- well, I was -- I'm older
23 than you but I was only 11, so I wasn't seeing
24 patients then. But the point is, I wouldn't
25 have known.

1 And a lot of times I'll tell them,
2 Well, there probably are causes, but I'm here to
3 treat you and I can only tell you about things I
4 do know about.

5 In some cases, for example, I took
6 care of AIDS patients. AIDS causes lymphoma
7 indirectly. It's not the cause, but people who
8 don't have an immune system get lymphoma.

9 Trichloroethylene can cause lymphoma
10 by suppressing the immune system. It's a
11 chemical reason for what the virus AIDS can do
12 to contribute to lymphoma.

13 Autoimmune diseases can cause
14 lymphoma. They're not the only cause but they
15 can contribute to the cause. They can make you
16 more susceptible to something like a carcinogen.

17 So there are many circumstances, I
18 would say, if I had a recognized, Oh, your
19 rheumatoid arthritis probably contributed to
20 your lymphoma. It wasn't the only cause, but it
21 was -- it made you more susceptible. Oh, you
22 were exposed to radiation. Radiation is a cause
23 of lymphoma.

24 But I couldn't know what I didn't
25 know, and most of the time people don't know

1 when they're exposed to something very
2 dangerous. Most of the time it doesn't come up
3 when you're coming to see a clinician.

4 As I've already described, my
5 priority is to treat them, because most of the
6 time knowing what the cause is or not does not
7 affect the treatment. Most of the time it
8 doesn't matter.

9 Q. Have you ever had a patient with NHL
10 or CLL tell you anything that would indicate
11 they were exposed to TCE, PCE, or benzene?

12 A. Maybe. I'm trying to think in my
13 recollection. But again, because most of my
14 priority when I'm treating people is to treat
15 them, and in the treatment decision whether or
16 not they were exposed to benzene or
17 trichloroethylene would be non-important. It is
18 important in terms of determining specific
19 causality when asked, but I don't have -- I've
20 only had maybe two lawyers as patients, and they
21 didn't ask me about specific causality. They
22 didn't say, you know, I'm a lawyer and I would
23 like to know about issues of specific causality.
24 They usually are just as scared as any person.

25 And I don't blame them. When I as a

1 doctor go and I'm worried about being sick, I
2 don't say, you know, I'm a world expert in
3 cancer, I'd like you to explain and give me all
4 the literature on what you think is going on
5 with me. I have no interest. I'm just as
6 scared, and that's the way I treat people that
7 come to my clinic. They're not there to get a
8 science exam -- or science lecture.

9 Q. Okay. In your clinical practice,
10 have you ever determined the cause of a
11 patient's NHL or CLL was exposure to TCE, PCE,
12 or benzene?

13 A. Well, importantly, I'll make it very
14 clear I'm not going to talk about the cause.
15 I'm talking about the fact that cancer has many
16 causes. And there can be a cause. And I'm
17 arguing that for Keller and Hill, I know that
18 their exposure to chemicals, including benzene,
19 was a cause, and I'll argue that it more likely
20 than not was a cause and it could be described
21 as significant.

22 I won't say that I know it's the
23 only cause. There could be other causes. I
24 would say it's a significant cause.

25 Patients -- it would be hard to say

1 that I'd be in a situation when a patient comes
2 to me clinically to be able to make an
3 assessment.

4 I probably have been asked -- most
5 people don't know to ask you, Was benzene or
6 trichloroethylene a cause? But they do know to
7 ask you, Could my exposure to something in the
8 environment be a cause or the cause, and I
9 probably have said it could, but let's treat
10 you, you know, because how am I supposed to
11 assess that.

12 It's not trivial to assess what
13 somebody's -- whether or not they were exposed
14 or not exposed based on a history. Most people
15 don't know, say, Oh, here's the chemical
16 structures I've been exposed to. They just ask
17 whether or not there are things in the
18 environment that can be a cause of cancer, and
19 undoubtedly I would say, Yes, there are things
20 in the environment that could be a cause and
21 that might be the case.

22 I'm sure I've said that to people.
23 Let's take care of you. I know you're worried.
24 Let's come up with a treatment plan for you so
25 that you're on the way to getting better.

1 Q. Okay. When you talked about
2 Mr. Hill and Mr. Keller specifically, you said
3 that there could be other causes of, for
4 example, Mr. Keller's NHL and Mr. Hill's CLL,
5 but their exposure to the chemicals at Camp
6 Lejeune was a significant cause, is that right?

7 A. I said that's one of the ways you
8 could describe it. I'm saying more likely than
9 not their exposure was a cause. I believe it
10 could be amongst things that could be considered
11 significant, but more likely than not it was a
12 cause.

13 Q. When you say "significant," how
14 would you define that term? What is significant
15 versus not significant?

16 A. Well, I think of significant as
17 meaning that when I reviewed their records and
18 all of what we've already described I reviewed
19 along with the medical literature, I can say
20 that their exposure, based on many
21 considerations, based on my expertise and
22 reviewing the evidence, weight of evidence,
23 integrative analysis, was something that I would
24 list as being a cause as opposed to I'm not
25 saying I'm speculating.

1 You could ask me if helium was a
2 cause, and I would say, Well, I don't know. Do
3 I think helium could cause cancer? Well, I
4 don't know so I won't speculate. You ask me am
5 I speculating about benzene? No, I'm not
6 speculating. I have evidence based on my review
7 that benzene was a cause more likely than not,
8 and I can tell you that benzene is a cause of
9 hematopoetic cancers, including the cancers they
10 have, and that they were exposed in a way that I
11 believe was more than likely a cause.

12 When I say there could be other
13 causes, what I'm saying is I don't know, there's
14 a possibility of something else that I haven't
15 been told about was involved, just like they
16 weren't told they were being exposed to benzene
17 and trichloroethylene and vinyl chloride and
18 perchloroethylene while they were at Camp
19 Lejeune.

20 There's a possibility. If you show
21 me, I will consider whatever you show me, but I
22 can't speculate about something I don't know
23 about. And I'm making the point that there
24 often can be not necessarily more than one cause
25 that is involved in a disease process like

1 cancer.

2 But I believe their exposure at Camp
3 Lejeune was a cause, more likely than not. It's
4 important enough that when asked about causes I
5 found, that is a cause I would list.

6 Q. Okay. You mentioned it's been,
7 what, about eight years since you were
8 clinically treating patients. My question now
9 is, you're not currently treating with patients,
10 right?

11 A. Well, that would be in part a
12 mischaracterization of what I said. What I said
13 is I don't have a clinic, I don't do inpatient
14 or admit patients to the hospital, but I do
15 treat patients in the sense that people ask me
16 for medical advice. I refer patients to
17 clinical studies, other colleagues, that former
18 patients will tell me about medical
19 circumstances, and it's not that I ignore them,
20 I respond. But I don't tell them that I can
21 treat you in my clinic or that I can give you a
22 treatment in the hospital because I don't do
23 that.

24 But certainly treatment in the sense
25 that I provided information and I'll act on it

1 within the limitations of not having a clinic
2 and not being somebody who directly admits
3 patients to the hospital.

4 Q. Okay. And so your primary duties
5 right now have to do with your research and work
6 as a professor at Stanford, right?

7 A. Those include what I do, but also I
8 described to you that I have a major leadership
9 role in mentoring and teaching other professors,
10 fellows, medical students how to be a doctor,
11 how to do clinical work, how to do clinical
12 research.

13 Q. What would you say the percentage of
14 your work at Stanford currently is devoted to
15 patient care as opposed to research?

16 A. Well, in the way I described it, I
17 would say half of what I'm doing would be called
18 research, and the other half would be in that
19 hat where I am teaching students about medicine,
20 clinical research, teaching students how to
21 develop new therapies, new diagnoses, how to
22 decide what new therapies are needed, how to
23 decide what new diagnostics are needed, how to
24 talk to a chemist or an engineer, how to
25 consider issues of safety, regulation, all kinds

1 of different considerations that are required.
2 You know, issues of what is a chemical that is
3 safe, how do you determine, how do you do -- how
4 do you consider -- how would you find out
5 toxicity, how would you find out if something
6 has the right pharmacology. You know, lots of
7 different capacities like that.

8 And a good part of my research has
9 involved considerations of environmental
10 carcinogenesis. I hadn't mentioned it yet, but
11 I was part of the Halifax project, published
12 multiple papers. I collaborated with people
13 from the California EPA, the national EPA, IARC,
14 on and on and on, to write a paper about, well,
15 how do you determine something is a carcinogen,
16 what are the assays, what makes something a
17 carcinogen.

18 And I've already told you that I am
19 a part of a committee in the California EPA, so
20 all these kind of different aspects of things.

21 I also provide advice to
22 pharmaceutical companies and biotech companies
23 in terms of developing therapeutics or
24 evaluating therapeutics and diagnostics and
25 other technologies.

1 But I would say that's how I spend
2 my time.

3 Q. Okay. And in terms of your board
4 certification, I understand you're not presently
5 board-certified in oncology because that
6 certification has lapsed, is that understanding
7 right?

8 A. I think that's a fair way of
9 characterizing it. I did board. And then the
10 only other detail is that Stanford for years
11 didn't ask any of us to reboard, because
12 historically it used to be, and if I had been
13 boarded I think a year earlier in oncology, you
14 only had to board once. And then at some point
15 Stanford decided, well, actually people do need
16 to recertify, and then it was decided if you
17 didn't recertify that you shouldn't have a
18 clinic and hospital privileges, but at that
19 point I'd already stopped having my own
20 continuity clinic and doing inpatient medicine.

21 But my understanding is if I wanted
22 to reboard, if I decided, well, I need to change
23 what I'm doing and you're making me -- asking me
24 questions, miss taking care of patients, because
25 I do -- I did love that part of my career, that

1 I could say, screw it, I'm going to go be a
2 doctor, spend time studying for the boards, but
3 I could take the boards just by registering for
4 them and taking them, is my understanding.

5 Q. You'd mentioned about clinic and
6 hospital privileges. You don't currently have
7 clinic or hospital privileges?

8 A. I currently do not, as I've already
9 said a couple of times.

10 Q. Okay. Just in those direct terms.
11 Forgive me if I'm getting lost in the phrasing
12 of it.

13 A. No, I currently do not have hospital
14 or -- hospital privileges, so meaning that I
15 can't directly admit a patient. If I had a
16 former patient who I believe needed to be
17 admitted, I could contact a junior colleague and
18 say, This was a former patient, they're sick,
19 would you -- would you evaluate, but I'm
20 worried.

21 And I could send a patient to the
22 emergency room, but I wouldn't be considered the
23 clinician of record. I would contact a
24 colleague who could follow the patient in their
25 continuity clinic, which I've done many times.

1 My former patients, they still contact me. When
2 they need to see an oncologist, I refer them to
3 a junior colleague.

4 Q. Okay. Understood. Thanks for
5 explaining that.

6 Okay. So we talked about your
7 medical oncology board certification. You were
8 also previously board-certified in internal
9 medicine, but that currently is not certified
10 because that certification has lapsed, is that
11 right?

12 A. Yes.

13 Q. Okay.

14 A. That's correct.

15 THE WITNESS: Bless you.

16 MR. TELAN: Thank you.

17 BY MR. RYAN:

18 Q. Okay. And in terms of your career,
19 have you ever been subject to a disciplinary
20 action or censured by any licensing body?

21 A. Not to my knowledge sitting here
22 today.

23 Q. Okay. And have you ever been
24 subject to any disciplinary action by any court
25 or tribunal?

1 A. I don't believe so. Not that I know
2 of.

3 Q. Okay. Turning to your amended Hill
4 report.

5 Do you want to take a break?

6 A. Sure.

7 MR. LEE: Let's take a break.

8 THE VIDEOGRAPHER: We are going off
9 the record at 11:33 a.m.

10 (Whereupon, a recess was taken.)

11 THE VIDEOGRAPHER: We are back on
12 the record at 11:41 a.m.

13 BY MR. RYAN:

14 Q. Dr. Felsher, I want to turn back to
15 your amended Hill report, which is Exhibit 3.

16 A. Yes.

17 Q. And also talk about your Keller
18 report, Exhibit 4. Do you have those handy?

19 A. Yes, I do.

20 Q. Okay. For your Hill report, in
21 Exhibit 3 there's a section on page 5 that's
22 titled Methods.

23 Do you see where I'm talking about?

24 A. Yes.

25 Q. In this section you state that you

1 utilized a differential etiology for Mr. Hill.

2 Is that right?

3 A. Are you referring to a specific part
4 of the text?

5 Q. Yeah. On the second paragraph on
6 page 5, Exhibit 3, it starts with, "I performed
7 a differential etiology."

8 A. You read that correctly, yes.

9 Q. Okay. And it says -- you say,
10 methods that "would be generally accepted and
11 commonly used in usual practice of physicians
12 and scientists with expertise in determining
13 etiology and are generally considered standard
14 for considering the contributions of risk
15 factors to a disease process."

16 Is that right?

17 A. You read that correctly.

18 Q. Okay. So is it fair to say you used
19 a differential etiology in authoring your
20 amended Hill report?

21 A. Well, I would say that's included in
22 the methodology. There are paragraphs in my
23 Methods describing methods, and I'm glad to
24 provide other details. I certainly describe
25 other aspects in the Methods in the first

1 paragraph. I provide much more detail in the
2 subsequent paragraphs.

3 So I would say that's included as
4 part of what I am doing. If you just took that
5 sentence alone, I wouldn't say it encompassed
6 all of the methods, but it certainly included.

7 Q. Understood. I can be more broad to
8 capture what your differential etiology was.

9 For the section on Methods on page 5
10 in Exhibit 3, going on to page 6, would that
11 encompass the differential etiology analysis
12 that you performed in the Hill case?

13 A. I think it provides a description
14 that is reasonable. If there is something I
15 mentioned that's unclear, I'm glad to clarify.

16 Certainly as a scientist and doctor
17 with decades of experience thinking about
18 methodology and considering things like what a
19 cause is, I wouldn't encompass every aspect of
20 everything I think about in terms of forming a
21 differential etiology and thinking about causes
22 in a few paragraphs. But I think this provides
23 an adequate and reasonable description.

24 Q. Understood.

25 Okay. And so page 5 of Exhibit 4 of

1 your Keller report, there's also a section
2 titled Methods.

3 Do you see where I'm talking about?

4 A. Yes.

5 Q. Okay. This is substantially similar
6 if not identical to the Hill report, is that
7 fair to say?

8 A. It looks very similar. Sitting here
9 I can see the text slightly must be different,
10 and, you know, I haven't remembered what's
11 different with it or the same, but it looks
12 largely similar.

13 Q. Okay. Would it be fair to say that
14 you performed a similar methodology for both
15 reports between your Keller and amended Hill
16 report?

17 A. I believe it's similar in the sense
18 that generally there may have been specific
19 aspects that were different because of
20 considerations that relate to specifics of each
21 individual.

22 Q. And have you ever used a
23 differential etiology analysis in other cases?

24 A. I'm not sure what you mean.

25 Q. So in, I guess, previous litigations

1 cases that you've been an expert in from --
2 where you were issuing an opinion on specific
3 causation, have you utilized a differential
4 etiology in those circumstances?

5 A. I've used similar methods. I would
6 put the caveat that lawyers and the legal system
7 sometimes will conflate a differential
8 diagnosis/differential etiology even though when
9 I've perhaps in some legal cases or depositions
10 used the word "differential diagnosis," I was
11 meaning in that context very similar if not
12 identical to when I'm saying differential
13 etiology.

14 I do believe that differential
15 etiology provides a more easily understood
16 description since the word "differential
17 diagnosis" can be incorrectly in some contexts
18 to presume that I am questioning the diagnosis
19 involved, clinical diagnosis. I'm trying --
20 but, so, that's the caveat I'd put.

21 Q. Have there been previous cases where
22 you've been retained as an expert where you've
23 been, for lack of better term, critiquing or
24 offering an opinion on the medical diagnosis of
25 a patient?

1 A. Probably. That might encompass
2 times when I've been giving an opinion on more
3 medical litigation where there may be a question
4 of a mistaken or misdiagnosis, I think.

5 Q. So, for example, like a medical
6 negligence case?

7 A. Correct.

8 Q. Have you been retained in medical
9 negligence cases?

10 A. Sometimes I have, yes.

11 Q. Dr. Felsher, would you agree that
12 the American Cancer Society is an authoritative
13 source for information concerning cancers?

14 MR. LEE: Objection to form.

15 THE WITNESS: I wouldn't generally
16 agree with that. They're an organization,
17 and they have -- as an organization many
18 people are part of the organization, they
19 write documents written by many people.
20 There are documents that I may consider in
21 part or parts reliable, or there may be
22 documents I would say are reliable, and
23 there may be statements they've made or
24 comments or websites that I would consider
25 less reliable. Or in some cases there are

1 documents from the American Cancer Society
2 that can appear to be in discordance with
3 other aspects of what they reported.

4 So I'd say generally, I would say
5 no. I wouldn't say that necessarily. I
6 don't -- they're an organization. I don't
7 know that they can be an authority. That
8 makes it sound like they're a single
9 individual with some authority. I
10 wouldn't say generally I'd describe it
11 that way.

12 BY MR. RYAN:

13 Q. I see in your CV you listed you've
14 been invited to give a presentation by the
15 American Cancer Society.

16 A. Yes.

17 Q. Do you recall that? That was
18 September 1st, 2004.

19 Does that sound right?

20 A. I mean, we could look at it. To say
21 I honestly remember what I did on September 1st,
22 2004 --

23 Q. No, no, no.

24 A. -- I would say, no, I do not
25 remember. But I do remember going to the

1 American Cancer Society and giving a
2 presentation.

3 Q. Okay. Would you agree that there's
4 generally no known cause for most cases of CLL?

5 A. Not stated as that way. I would say
6 there are lots of causes and risk factors that
7 can be considered. The fundamental basis of
8 CLL, as stated so broadly as you stated, I'd
9 say, well, no, we know that molecular genetic
10 events are what are the main factor that
11 constitutes when a normal lymphocyte becomes a
12 CLL.

13 We may not be able to discriminate
14 in a particular context because we're unaware of
15 the precipitating risk factors and causes. But
16 as you said it so generally, I would say that's
17 too vague of a statement that I could simply
18 agree or disagree with it.

19 And in fact -- in point of fact, if
20 I simply agreed with it, it would be blatantly
21 contradicting the fact that I actually have a
22 pretty good idea that cancer has a known cause
23 which are other genetic events that are cause
24 which precipitates those we don't always know.
25 But sometimes we do.

1 And with sufficient investigation,
2 there are probably many examples of where we
3 would know, but often we don't know because the
4 information isn't provided to us or easily
5 obtainable, or it's hidden in some cases, either
6 purposefully or unintentionally.

7 Such as, Mr. Hill and Mr. Keller
8 didn't know they were being exposed to
9 cancer-causing chemicals while they were in the
10 services. They weren't told. They didn't know.
11 They wouldn't have known to tell their doctors.

12 Q. Dr. Felsher, I am showing what I'm
13 marking as Felsher Exhibit Number 11, which is,
14 for the record, titled Chronic Lymphocytic
15 Leukemia Causes, Risk Factors, and Prevention.
16 This is provided by the American Cancer Society.

17 (Whereupon, Exhibit Felsher 11 was
18 marked for identification.)

19 BY MR. RYAN:

20 Q. Have you seen this before?

21 (Witness reviewing document.)

22 A. Not to my knowledge. I mean, it's
23 possible. American Cancer Society has lots of
24 documents. But it's not something that I am
25 aware that I've seen before necessarily.

1 Q. Okay. If you please turn to page 4.
2 Under -- near the top, What Causes Chronic
3 Lymphocytic Leukemia, or CLL, first sentence
4 states, "We know some of the risk factors for
5 chronic lymphocytic leukemia, but the exact
6 cause of CLL in most people is not known."

7 Did I read that right?

8 A. I believe you read the words
9 correctly, yes.

10 Q. Do you disagree with this?

11 A. Well, I would -- I wouldn't give a
12 simple yes-or-no answer. I would say this one
13 sentence out of context doesn't encompass a lot
14 of what is known about causes and risk factors,
15 but it's, as I've already described, probably
16 often the case that if you talk about an
17 individual person, they don't know.

18 But the statement is also misleading
19 and disregards decades of science in terms of
20 molecular etiology of cancer. In that context,
21 they would have to say, We know what causes
22 cancer, it's genetic events in lymphocytes, and
23 we know a lot of this.

24 They even allude to those when they
25 say it's changes in genes, in chromosomes,

1 chromosome and gene changes, in B lymphocytes,
2 gene mutations, the bolded statements, which in
3 point of fact the layperson who probably wrote
4 this didn't realize that the first sentence and
5 the other parts of this are in some sense
6 internally contradictory.

7 Now, I understand what they're
8 getting at. They're getting at, well, most of
9 the time when you go to your doctor they're not
10 going to tell you they know the precipitating
11 cause of the genetic event. But if this was a
12 scientist talking to another scientist and asked
13 me, Do you know why cancer happens, I'll say,
14 Yeah, they're genetic events, and there are lots
15 of them that have been characterized in CLL.
16 Well, what caused the genetic events? Well,
17 there are a lot of things that can cause it.

18 Do I know any particular individual?
19 Yes. In the case of Mr. Keller and Mr. Hill, I
20 will testify their exposure, for example, to
21 benzene was more likely than not one of the
22 causes.

23 Now, obviously it was Mr. Hill who
24 had CLL, so I'd say in the case of him, his
25 exposure was, I believe, more likely than not

1 one of the causes.

2 Q. A cancer with an unknown cause would
3 be considered to be idiopathic, is that right?

4 A. Not really. Idiopathic would be a
5 name we would give not necessarily if there
6 isn't a known cause, but you don't know the
7 cause. So idiopathic would encompass also cases
8 of where there is a known cause, you just don't
9 know it.

10 For example, I already told you that
11 autoimmune disease can contribute to cancer.
12 You may not know you have an autoimmune disease,
13 you might find out later that you did, and then
14 I would say, Oh, now that we know and we didn't
15 know.

16 So idiopathic can mean also we don't
17 know, but not because it doesn't mean that there
18 isn't a cause. It may mean that we don't --
19 sometimes you can mean it in a sense that we
20 don't know why something happens, period. It
21 can mean that.

22 Q. Okay. So you're drawing a
23 distinction between unknown cause for a cancer
24 and unknown cause that we don't know?

25 A. I'm saying that there's not -- I'm

1 not trying to draw a distinction, but I'm just
2 saying when the word "idiopathic" is used, that
3 does not mean most people don't know. Most
4 people not knowing can also mean you lived in
5 Camp Lejeune and you didn't know until today,
6 like Mr. Hill, or whenever they found out that
7 they were exposed to a carcinogen. They didn't
8 know when they were there. There wasn't a sign
9 saying, Welcome, you will be drinking water
10 contaminated with carcinogens. That would be
11 not known.

12 Using the complicated word
13 "idiopathic" for that is obfuscating. It's true
14 they didn't know. Their doctors wouldn't have
15 known, unless somebody said, Alert, anybody
16 going to Camp Lejeune over this period of time
17 who drank the water was exposed to carcinogens.
18 Then they would know.

19 Idiopathic to a scientist can mean,
20 oh, no, we really don't have an idea of the
21 cause. But I've already told you we know that
22 there's a genetic basis of CLL. I can tell you.
23 It's not that that's unknown.

24 The aspect that you might say is
25 unknown is, well, we don't know what

1 precipitated. In a lot of cases we don't know
2 what precipitated because we didn't know
3 something like they were exposed to radiation,
4 they were exposed to benzene.

5 That is the clarification they're
6 providing. It's not a distinction. I'm just
7 not allowing the words to be blurred in a way to
8 say that this document is talking about and
9 saying most people don't know. That is not
10 talking about idiopathic in that context, and
11 that's what you've concluded. I'm saying, no,
12 you're wrong, that's not what I conclude from
13 that statement.

14 Q. And so when a scientist uses the
15 word "idiopathic" in terms of, you know, the
16 cause of a cancer, they are meaning that they
17 don't know the cause?

18 A. Sometimes. It depends on the
19 context. You can use idiopathic. It can also
20 be there's a known -- it could be -- I've
21 already explained to you that a scientist like
22 me will not say we do not know why cancers
23 arise. We'll say, no, they're genetic events.
24 It might be that we don't know in a particular
25 circumstance why the genetic event arose.

1 I'm saying idiopathic -- you have to
2 be careful using the word "idiopathic" when it
3 says most people don't know. That's all I'm
4 trying to clarify for you.

5 Q. Okay. Speaking specifically on NHL
6 and DLBCL, would you agree that there's no known
7 cause for most cancers of NHL?

8 A. I wouldn't generally agree in the
9 way you're saying it. I would say in most cases
10 of NHL, including CLL and immunoblastic
11 lymphoma, we strongly know that activation of
12 oncogenes or an activation of tumor suppressor
13 genes are generally what causes something to be
14 a cancer cell.

15 Often we don't know because we are
16 not given the information of what precipitated
17 it. Sometimes we can't know because the cancer
18 takes decades to arise, and asking somebody what
19 were you doing over the last 20 or 30 years is
20 pretty difficult. Most people wouldn't
21 necessarily have a way of knowing that there was
22 something that precipitated it.

23 It's not typical that somebody says,
24 You know, 20 years ago there was a nuclear
25 submarine and I went down and was exposed to

1 high doses of radiation, and now decades later I
2 have cancer. And I would say, Based on my
3 understanding of cancer and the disease you
4 have, more likely than not that was a cause.

5 But a lot of times we don't have the
6 information. That's my clarification.

7 Q. Understood.

8 When you're either clinically or
9 reviewing a patient with NHL or CLL, it would be
10 common practice, right, to ask for their
11 occupational history or their family history of
12 certain diseases, right?

13 A. That will be included. Often we'll
14 obtain that information as part of a history.

15 Q. Okay. And, for example, their
16 occupational history might reveal certain
17 exposures to known and volatile organic
18 compounds or chemicals, right?

19 A. There are circumstances where that
20 happens. More often than not it's like the case
21 for these two individuals, they weren't told,
22 Come here and while you're in the services just
23 know you're being exposed to a carcinogen.

24 There are circumstances -- I've had
25 individuals say, I work at place X, they told me

1 that I would be exposed to this dangerous
2 whatever. But that's unusual.

3 Usually -- and also since cancer
4 arises over many, many years, most people don't
5 know to tell you, You know, 30 years ago, this
6 is what I did. Usually people tell you, This is
7 what I do right now.

8 So we get those histories, but
9 they're not usually as -- they're not
10 necessarily informative of knowing about -- it's
11 hard to say that discerns. It's not that we
12 don't try.

13 But I've already explained to you
14 mostly when you go see -- when you see a
15 patient, your priority number 1 is to treat
16 them.

17 Q. Are you familiar with a Dr. Richard
18 Hoppe?

19 A. Richard Hoppe you mean, from
20 Stanford?

21 Q. Yes. Forgive me. Hoppe.

22 A. Yes. He used to be the chair of
23 radiation oncology.

24 Q. Are you aware that he was retained
25 as an expert witness in this case? "This case"

1 being the Camp Lejeune litigation generally, not
2 Mr. Hill or Keller's case.

3 A. Maybe I knew or didn't know, but
4 sitting here right now I didn't recall one way
5 or the other. I mean, I might have been
6 informed at some point, but I don't remember.

7 Q. But he's a colleague of yours at
8 Stanford, right?

9 A. I believe he's still faculty at
10 Stanford. I think he's emeritus. I certainly
11 know him.

12 Q. Okay. Are you aware that
13 Dr. Richard Hoppe in his deposition in specific
14 causation in this litigation, he agreed that
15 there is no known cause for most cases of NHL?

16 A. I didn't know one way or the other,
17 so I would not have an opinion one way or the
18 other, you know, regarding his -- any testimony
19 he had one way or the other.

20 Q. You haven't spoken with him about
21 this litigation, then, have you?

22 A. No. No, I haven't. That opinion
23 without any context wouldn't change any of my
24 opinions. You know, I welcome his opinion, but
25 his opinion wouldn't change my opinion based on

1 my understanding of the medicine and science,
2 just based on that statement. Again, I don't
3 know that I've seen anything, so...

4 Q. Dr. Felsher, I'm showing you what
5 I'm marking as Felsher Exhibit Number 12, which
6 I will represent is a scientific literature
7 authored by Sophia Wang. I hand this to your
8 counsel first (handing).

9 (Whereupon, Exhibit Felsher 12 was
10 marked for identification.)

11 BY MR. RYAN:

12 Q. It's titled Epidemiology and
13 Etiology of Diffuse Large B-Cell Lymphoma which
14 was published in the journal of seminal
15 hematology November 2023.

16 A. Just for the record, it's Seminars
17 in Hematology. You'd have no way of knowing
18 that.

19 Q. No. Forgive me.

20 A. You have no way of knowing. It's
21 not seminal hematology, it's seminars.

22 Q. Thank you.

23 A. They're a whole series of review
24 journals.

25 Q. Take all the time you need to review

1 this, and when you're ready my question will be,
2 have you seen this before?

3 (Witness reviewing document.)

4 A. I don't know that I've seen this
5 before, seeing it.

6 Q. Okay. When you're ready, you can
7 turn to page 1 and I can just ask questions.

8 A. Please, I'm ready.

9 Q. Okay. On page 1 of Exhibit 12
10 towards the bottom, the second-to-last sentence
11 reads, "Recent estimates suggest that obesity
12 accounts for nearly a quarter of DLBCLs that
13 develop, but despite recent gains in the
14 understanding of DLBCL etiology, the majority of
15 disease remain unexplained."

16 Did I read that correctly?

17 A. You read it correctly. I don't know
18 out of context that I would agree with the
19 statement as stated, and it wouldn't change my
20 opinions, to my knowledge.

21 Q. Okay. What specifically would bring
22 you to disagree with that?

23 A. Well, obesity has been associated
24 with a risk of cancer. Risk is not the same as
25 cause. Obesity has complex effects on humans,

1 but mainly changes our susceptibility by causing
2 a modulation inflammation immune system. Those
3 modulations may make you more susceptible to
4 other causes.

5 This investigator is not a
6 clinician, I can tell. I don't know the
7 article, but they're a Ph.D.

8 And that argument in isolation seems
9 to me, reducing complex biology to something
10 that's a statement that is very misleading.
11 They're implying there's a single cause.
12 They're implying obesity can directly cause. If
13 that is what this person is arguing, I would say
14 I don't agree with that. That's not my
15 understanding, and it's certainly not as simple
16 as that one statement.

17 To say the majority of diseases
18 remain unexplained implies that we can explain
19 diffuse large cell lymphoma simply as being
20 related to being obese, which I find to be
21 misleading and incongruous with a lot of the
22 science that I understand.

23 It doesn't even take into account --
24 I can thumb through the article and I can see
25 that they do mention benzene there is evidence

1 for, so it's not that it wasn't considered.

2 I'd also point out this is in 2023.
3 Some of the strongest evidence that benzene
4 could be a cause of leukemia and lymphoma was
5 published in the last few years in the Yu and
6 Wang papers as well as other papers that have
7 been published over the last recent years.

8 I haven't reviewed this so I don't
9 have a strong opinion other than to say that
10 sentence out of context I believe is misleading,
11 and I wouldn't agree with it.

12 Q. Okay. If you turn to page 12.

13 A. Yes.

14 Q. Under the heading Future Directions
15 in Epidemiologic Research.

16 A. Yes.

17 Q. It states, "Although there are some
18 very strong risk factors for DLBCL, most
19 patient's DLBCL will likely develop through
20 multifactorial etiology."

21 Do you agree with that statement?

22 A. Well, I haven't reviewed the paper,
23 and out of context I would say it's not saying a
24 lot to say that there are strong risk factors.
25 There are factors that probably you might

1 qualify as strong.

2 The idea that there are multiple
3 factors involved, as I'd already stated
4 something similar to that, saying this sentence
5 in the abstract appears to imply that obesity
6 alone causes lymphoma, and then here the summary
7 is stating something making it clear that, I
8 didn't really mean to say that statement in the
9 abstract.

10 So I haven't reviewed this paper,
11 but out of context those two sentences seem to
12 be confusingly inconsistent with each other.

13 Q. Okay. So you mentioned that
14 strictly in relation to obesity and there being
15 no known cause for most DLBCLs. Early on page 1
16 it does go over what risk factors are
17 considered.

18 MR. LEE: Objection. Form.

19 THE WITNESS: Well, you know I
20 haven't reviewed the paper, so I don't
21 know what's on page 1.

22 BY MR. RYAN:

23 Q. Fair enough.

24 Earlier on page 1 it states, "Family
25 history of NHL/DLBCL, personal history of

1 cancer, and multiple genetic susceptibility loci
2 are also well-established risk factors for
3 DLBCL."

4 Would you agree with that?

5 A. No. Well, I wouldn't say I disagree
6 with it, but I don't know that that's
7 all-inclusive. They're vague statements.

8 Of course the next statement then
9 refers to the evidence for multiple
10 environmental exposures, including
11 trichloroethylene, benzene, and pesticide and
12 herbicides.

13 So I think probably I'd have to
14 review the whole article to know whether or not
15 that sentence -- it appears to include some
16 aspects of the biology, but I haven't reviewed
17 this paper.

18 Q. Understood.

19 A. But even glancing at it, it brings
20 up benzene at least twice, and other
21 environmental exposures, so -- including
22 trichloroethylene and benzene.

23 So at least this investigator in
24 2023 thought to summarize the potential
25 etiology, including two chemicals which are

1 directly relevant to opinions I have.

2 This is just a review article, and I
3 don't know that a review from 2023 is
4 particularly remarkable one way or another. But
5 again, I haven't reviewed this paper.

6 What I mean by not remarkable is,
7 showing me an old review article, I don't know
8 that I'd have a strong opinion on that. I don't
9 know Sophia Wang. I'm glad to review it, the
10 paper, if it's necessary.

11 Q. So as a scientist and an expert
12 looking to determine causality of certain
13 chemicals in relation to CLL and NHL, can you
14 tell me if there's a percentage of NHL cases
15 where you sought to understand the cause but you
16 determined there was an unknown cause?

17 A. I don't know how to answer that
18 because I've already explained to you -- and
19 even this review that we've just looked at, I've
20 looked at in cursory, tells you it's
21 multifactorial.

22 So if that's the case, which I'd
23 say, yes, usually there are more than one, then
24 how can I know something I don't know about to
25 know that there's something I don't know about.

1 What I can know about are known
2 causes. If I found something I believe is a
3 known cause, then that is included, but that
4 doesn't exclude the possibility there's
5 something that I don't know about that also was
6 a cause.

7 So how could I possibly go back in
8 my mind and say, how many people have I tried to
9 figure out a cause and found there was a cause I
10 didn't know about that is a cause? That's like
11 asking me did I look at all the patients I saw
12 and every person I didn't know the cause, and
13 20 years later I realized after the patient
14 maybe passed to their cancer there was a cause I
15 didn't think -- I didn't consider that now we
16 know about. I don't understand that.

17 What I do know is both these
18 individuals were exposed to chemicals that can
19 be a cause of their disease, and I believe they
20 were a cause. And I'm not saying they're the
21 only cause. I'm saying they were more likely
22 than not a cause, and that they're more likely
23 than not causes. I'm not saying I know -- an
24 unknown cause I don't know about I can't know
25 about.

1 Q. Has there been previous patients
2 that you reviewed where you could not determine
3 that an exposure to benzene, TCE, or PCE was
4 more likely than not the cause of their NHL or
5 CLL?

6 A. Maybe, but I can tell you sitting
7 here today that I know that there are chemicals
8 that can be associated with hematopoietic
9 cancers, and whether or not they were a cause or
10 not was not going to influence my treatment
11 decision, and so that wasn't -- that wasn't the
12 primary issue.

13 Undoubtedly I would have had people
14 who told me there was some exposure, and I don't
15 remember every example I said, Well, yes, that
16 might have been a cause, now let's talk about
17 how to get you better from your cancer. Not
18 dismissing it, but it wouldn't -- in the Special
19 Forces guy, I think he was actually a Navy SEAL
20 and that's why he was in the submarine, we
21 didn't dwell on the fact his radiation was a
22 cause, it's just something he told me. In that
23 case it was easier to say, Well, there really is
24 a line there.

25 Q. Okay. And you mentioned maybe there

1 was a time where you determined that -- or you
2 couldn't determine that it was more likely than
3 not it was a cause for a patient's NHL. Do you
4 remember any specific instances?

5 A. No, but somebody may tell me, I was
6 a farmer one year 30 years ago. And I may have
7 asked them, What did you do as a farmer? And
8 they might say, Well, I don't remember. What
9 did you farm? I farmed tomatoes. What did you
10 use? Did you use chemicals? I don't remember.
11 Was there anything you used? Yes. Do you
12 remember what it was? No.

13 That would be an example of where
14 I'd say, the person was a farmer, they were
15 potentially exposed to something. Can't
16 determine. I'd have to speculate. Is it going
17 to change my treatment? No.

18 Lots of anecdotal examples of where
19 people mentioned something, but I can't say. If
20 you asked me could it be, I'd say, Well, it's
21 possible but I can't say, I don't have
22 information on what it was they were exposed to,
23 when, how long. It's very hard to get that
24 information from a person just coming to you as
25 a doctor. They don't usually say, You know, I

1 chronicled it, and, by the way, I kept each
2 pesticide and each chemical I used. Here they
3 are. Do you want them? Actually I kept all of
4 them with me. And here's a list, and here's how
5 much I used and when. Very hard for the average
6 person to do that. It's very hard.

7 And as a clinician, as a doctor,
8 what do we say? We say when we know this, was
9 it a cause? We don't know. Could it have been?
10 Maybe.

11 Q. In your experience as an expert
12 determining causality of CLL or NHL, have you
13 ever determined that you could not say it was
14 more likely than not that exposures to benzene,
15 TCE, or PCE was more likely not the cause of
16 their cancer?

17 A. Well, I would say not that. I would
18 say that more often -- if I were told like the
19 example I gave you, I would say I don't know
20 because I don't have enough information. So I
21 don't say it's not more likely than not, I'd say
22 I don't know.

23 Very much like if you said to me,
24 Doctor, you seem like a smart guy, I just want
25 to show you, this is something I'm using. And

1 you give me this product you're using. Could
2 that give me cancer? And I'd say, I'm sorry, I
3 don't know. Could it? Well, maybe. I'd look
4 at what's in it.

5 That's not ruling out. That's not
6 saying it's less likely than not. That's saying
7 I don't know.

8 And that's the distinction I'm
9 making with the word "idiopathic," is you can't
10 use idiopathic when you don't know when it is --
11 you don't have enough information to decide
12 either way. It's not more likely or not, it's
13 that you don't have the information, you don't
14 know, what you would call as a lawyer would be
15 me being speculative. I'm not going to
16 speculate. And as doctors we don't speculate
17 either.

18 Somebody says, you know, I drank
19 this. Do you know what's in it? No. Do you
20 think it caused my cancer? Yes. Why? Well,
21 because you drank it. I'd say I don't know.
22 Would you say it definitely did it? No. I'd
23 say I don't know what's in it.

24 So information where I can't make a
25 decision either way is simply it's not that I

1 make a determination one way or the other, I
2 just say I don't know, just like I'd list he was
3 a farmer. Did I think it was? I don't know.

4 Q. Can you recall how many times as an
5 expert witness where you've come to the
6 conclusion that, I don't know what a patient's
7 NHL or CLL was?

8 A. Most -- no, because most of the time
9 that is not the 1 through 10 goal, is to decide
10 whether or not I know or don't know. And I
11 don't say I don't know when I don't have
12 information. I just not consider it.

13 I know as a scientist and a doctor
14 not even to remark on speculations. I'm not a
15 brand-new doctor who doesn't know anything about
16 medicine where I list 5,000 things that could
17 have been the cause. That is not -- there's no
18 reason for speculating about every possible
19 thing.

20 I don't ask every person I see, you
21 know, I had one patient who was a Navy SEAL who
22 got lymphoma. Were you a Navy SEAL? I don't --
23 why? Well, because it's not something that
24 makes sense in terms of the management of the
25 patient.

1 If they volunteer they're a Navy
2 SEAL, I might ask, Oh, you're a Navy SEAL, were
3 you exposed to something dangerous? I might.
4 But I don't go to every person and ask them.

5 I wouldn't have known until more
6 recently, the last few years, that if you worked
7 at Camp Lejeune you were exposed more likely
8 than not to carcinogens through the drinking
9 water. I never saw, Camp Lejeune, come here,
10 you will drink water contaminated with known
11 carcinogens.

12 I don't -- I've never had any of
13 military say, you know, this is -- the military
14 likes us to work in a place where you drink
15 known carcinogens. It wasn't something that was
16 generally known.

17 So I know as a doctor and scientist,
18 most people don't know, and so I don't even
19 remark on it. I'm not going to think of every
20 potential thing I don't know and say I've
21 concluded I don't know.

22 Can you imagine going to a doctor
23 who before treating you said, I've ruled out
24 10,000 potential causes, I'll go through each
25 one. You would think I was crazy. What kind of

1 doctor does that? You would say, Are you going
2 to treat me or are you going to rule out every
3 possible thing you can think of?

4 Q. So when you're in a clinical
5 setting, I understand that you're not going to
6 rule out 10,000 different things. But in your
7 role as an expert on specific causation, have
8 you ever considered in your differential
9 etiology risk factors, other known causes, and
10 then came to a conclusion that you couldn't say
11 it was more likely than not the cause of NHL or
12 CLL?

13 A. Likely.

14 Q. Do you remember any specific
15 instances of that?

16 A. None I can think of offhand, but
17 generally I am going to ask in a consideration.
18 If one of these individuals had told me, I have
19 been a farmer for 20 years, or if I'd known in
20 the history, then it would have occurred to me
21 to ask is there any more information, because
22 I'm being asked about specific causality, I
23 would consider.

24 And it's not like if a person came
25 to me and said, I was a Navy SEAL, could that be

1 a problem? I wouldn't ask them, Were you
2 exposed to anything?

3 I've had -- I had a case of a nurse
4 who -- I don't think it's public so I don't know
5 what I can talk about, but I asked the nurse,
6 You're a nurse, did you use anything dangerous?
7 I don't know. Did you use -- what kind of
8 nursing did you do? Would you have used
9 radiation? Well, some patients got. Did you go
10 into the room when the radiation? No, of course
11 not, Dr. Felsher. Okay. Did you ever spill the
12 chemicals you were giving a patient? One time.
13 Okay. How much? One time. Oh, okay. Just one
14 time, that seems very...

15 So it's not that I wouldn't. I
16 consider -- I do consider thousands of
17 considerations. That's why people seek my
18 opinion. I often am asked my opinion because I
19 will consider thousands of considerations that
20 I'll rule out based on things that are hard to
21 articulate based on decades of thinking about
22 causes of cancer, and I will think and I will
23 ask.

24 That's why I'm telling you the
25 methodology list here can't possibly list

1 everything I consider. I can't list everything
2 I consider.

3 You gave me one sentence on
4 autoimmunity. I spent my entire Ph.D working on
5 how autoimmunity contributes to cancer. These
6 lawyers were shocked how much I knew about
7 immunology. They said, I didn't know you knew.
8 Yeah. Are you kidding? I'm a faculty in
9 immunology. Oh, You are? Yeah. I've published
10 papers on immune checkpoints, I've published
11 papers on natural killer cells and their
12 mechanism.

13 So if there was something leading a
14 direction that that was relevant, I'd say, oh,
15 you know, I actually know that this chemical
16 works by blocking this immune mechanism. And I
17 know that actually can be a cause of cancer. It
18 would lead to different set of questions and
19 considerations.

20 So it would be hard to encompass all
21 the examples, I think.

22 Q. Okay. I want to turn to some
23 language you use in your Hill and Keller reports
24 regarding a legal standard.

25 A. Yes.

1 Q. On page 5 of Exhibits 3 and 4.
2 Those are the amended Hill report and the Keller
3 report.

4 A. Yes.

5 Q. Under the Methods section kind of in
6 the middle of the paragraph, I'm going to read
7 specifically from the Keller report, it states,
8 "My opinions consider whether there is at least
9 as likely as not a causal relationship between
10 the chemical carcinogens described in this
11 report" --

12 A. Hold on a second. I was still in
13 the -- I was looking at the wrong document.

14 Q. Sure.

15 A. Okay.

16 Q. Okay. In the middle of the
17 paragraph in Methods in the Keller report, it
18 states, "My opinions consider whether there is
19 at least as likely as not a causal relationship
20 between the chemical carcinogens described in
21 this report and hematopoietic cancers, and in
22 particular, non-Hodgkin's lymphoma and chronic
23 lymphocytic leukemia also called small
24 lymphocytic lymphoma."

25 I read that right from your Keller

1 report, right?

2 A. You read it from the Hill report, I
3 think.

4 Q. You're absolutely correct.

5 A. You're trying to trick me again.
6 You see, I caught you.

7 But Hill has CLL and Keller doesn't,
8 so I added in the clarification for your
9 purpose.

10 Q. Again keeping you on your toes,
11 Doctor.

12 A. Thank you.

13 Q. Yeah, that was from page 5 of the
14 Hill report.

15 A. Correct.

16 Q. There's a similar sentence in the
17 Keller report, states the same thing, "My
18 opinions consider whether there is at least
19 likely as not a causal relationship between the
20 chemical carcinogens described in this report
21 and hematopoietic cancers, and in particular
22 non-Hodgkin's lymphoma."

23 Is that correct?

24 A. You read those correctly. Although,
25 it doesn't look like it, but it's pronounced

1 hematopoetic.

2 Q. Hematopoetic?

3 A. Yeah, but don't -- it's a ridiculous
4 word. Nobody can pronounce it.

5 Q. Thank you. I'll endeavor to get it
6 right. Thank you.

7 Both reports use the same language
8 going forward, "I understand 'at least as likely
9 as not' to be the causation standard under the
10 Camp Lejeune Justice Act. I define 'at least
11 likely as not' as meaning that there is at least
12 an equal or greater than equal chance,
13 50 percent or greater than equal chance (50
14 percent or greater chance) that the exposure
15 described below was sufficient to have a causal
16 relationship."

17 Is that right?

18 A. You read that correctly. And I
19 believe it's correct that that is the Camp
20 Lejeune Justice Act from 2022, the standard that
21 was in that Act.

22 Q. Okay. Did you review the Camp
23 Lejeune Justice Act in reaching your opinions in
24 the Hill and Keller reports?

25 A. At some point I have reviewed the

1 document. I haven't memorized it. And there's
2 language in it that has less -- but I have
3 reviewed it at some point.

4 Q. Okay. Were you instructed to opine
5 on the Camp Lejeune Justice Act legal causation
6 standard in your reports?

7 A. I don't know that I'd describe that
8 I was instructed. I was aware of the Camp
9 Lejeune Justice Act, I was aware of the
10 standard. I'm aware of what ATSDR describes
11 when they considered the different carcinogens
12 in -- that people who worked or served in Camp
13 Lejeune were exposed to in the language. And
14 it's language familiar to me, as these are words
15 that often you could use in a combination to
16 give an idea of a relative relationship between
17 in this case exposures and a cause. And I refer
18 to the 2017 ATSDR right after, the sentence
19 after.

20 Q. Have you previously reviewed
21 statutory language when rendering an expert
22 opinion?

23 A. I believe that generally I'm aware
24 that there are -- there's language that relates
25 to regulation that I would say -- I don't know

1 what constitutes reviewing, but I'm certainly
2 aware of the language of causality can be
3 specific to a particular jurisdiction, whether
4 it be federal or state, specific states, that
5 there can be language this relates to a
6 particular proposition or law.

7 So I have some familiarity with this
8 idea that the words used that relate to what is
9 considered a cause by a legal standard can be
10 different in different contexts, different legal
11 contexts.

12 Q. In your prior practice, however,
13 have you ever diagnosed a patient using the at
14 least as likely as not standard?

15 A. Well, I think that's misconstruing
16 multiple concepts. Diagnosis would be
17 determining what disease somebody has.

18 And if you're asking me about when
19 I'm being a clinician diagnosing somebody with
20 disease, if that's what you're asking me, that's
21 a different kind of question than asking me the
22 question of whether or not I'm considering a
23 cause of differential etiology.

24 So are you asking me about my skills
25 as a clinician diagnosing, or are you asking me

1 about my skills as an expert determining issues
2 of causality?

3 Q. Well, how about both?

4 So in your clinical skills in
5 diagnosing, have you ever previously diagnosed
6 someone on an at least as likely as not
7 standard?

8 A. Well, when I'm diagnosing somebody
9 as a clinician, I don't know that we use a legal
10 standard. If you're asking have I been in a
11 courtroom where I disagreed with a diagnosis
12 where there was a legal standard about a
13 diagnosis, I can't remember if -- what the
14 standard was. I know I've given opinions on
15 whether or not I agreed or disagreed with a
16 particular diagnosis.

17 As far as etiology, it's very common
18 that as a scientist-doctor when we're talking as
19 a doctor about patients, when I'm teaching
20 junior doctors, interns, and residents, or
21 fellows, and we're considering issues
22 scientifically of cause, or actually when we're
23 considering diagnosis we'll talk about, Well,
24 how likely is the diagnosis? Is this diagnosis
25 equally likely?

1 I guess I'm revising my answer,
2 realizing every time I function as an attending
3 we would talk about issues of about how likely
4 or not a certain diagnosis is. I mean, it's
5 very common. We prioritize it differently.

6 Clinically I don't prioritize cause
7 etiology, I prioritize urgency. It's much more
8 important that if there's even a small chance of
9 something very bad -- for example, if it's
10 equally likely you're having heartburn versus a
11 heart attack, I'm not going to assume you have
12 heartburn, I'm going to assume you're having a
13 heart attack.

14 Even -- in fact, I would worry if
15 you had a 2 percent chance of having a heart
16 attack, because you could die of that if I don't
17 diagnosis you. If I don't diagnosis heartburn,
18 you just are uncomfortable.

19 So clinicians generally do use this
20 kind of verbiage. We'll say, Well, how likely?
21 Is it really likely? Is it equally likely the
22 person is having -- is the person equally likely
23 to be having polycythemia versus are they having
24 a myeloproliferative syndrome? Well,
25 polycythemia -- never mind, polycythemia isn't

1 urgent.

2 Some myeloproliferative syndromes
3 like chronic myelogenous leukemia are more
4 urgent. Or if you're trying to distinguish
5 between a leukemia and an inflammatory response,
6 you miss a leukemia, that could be urgent than
7 somebody just having an inflammatory response.

8 So I would say, yeah, this sort of
9 weighing and deciding and is it equally likely
10 or less likely, very common that we do as
11 doctors when we are in our clinical hat
12 diagnosis.

13 As scientists we also will think,
14 amongst the possibilities, are they equally
15 likely? Is this more likely? Is this really
16 likely? Is this unlikely, but it would be
17 important to know?

18 Q. Would you say that the standard as
19 likely as not is equatable to equally likely?

20 MR. LEE: Objection to form.

21 THE WITNESS: It's not exactly the
22 same, because at least as likely as not --
23 well, I guess they're similar. I don't
24 know. I think it's similar. Somewhere I
25 think I talked about this.

1 So at least as likely as not, I
2 defined it as 50 percent or greater.
3 Equally likely would be
4 50 percent/50 percent.

5 So at least the way I conceived it
6 here, I mean at least as likely as not, at
7 least 50 percent or greater as opposed to
8 exactly 50/50. So it wouldn't be the same
9 thing.

10 BY MR. RYAN:

11 Q. Are you aware of any published
12 guidance on how to apply the as likely as not
13 standard?

14 A. If there's a publication that you
15 believe that I've listed that includes such
16 language or there's a paper you want me to
17 consider, but sitting here today, I believe the
18 words themselves are understandable, and the
19 idea of are things being equally likely or more
20 likely than not or as likely or more likely are
21 concepts that are part of the general
22 understanding of part of the training of being a
23 doctor and scientist.

24 As much as I can't imagine somebody
25 saying I need to read guidance on the fact that

1 50/50 is different from 51/49, I'd say, yeah,
2 they're different. One is a 50/50 chance; 51 is
3 bigger than 49.

4 Q. In any of the materials you've
5 listed as things you considered, I'm not aware
6 of anything that shows any published guidance on
7 how to apply the as likely as not standard. Is
8 there anything I'm missing in the materials
9 you've considered that would be published
10 guidance?

11 MR. LEE: Object to the form.
12 You can answer.

13 THE WITNESS: It could be, because
14 certainly the ATSDR document that I cite
15 talks about equipoise and explains what
16 equipoise and above means, which is
17 another way of describing "at least as
18 likely as not."

19 And I cite that, and I specifically
20 cite it, and it talks about it, and I
21 define what it is, so at least that's one
22 example.

23 I don't remember the Camp Lejeune
24 Justice Act they describe. They must
25 have, but I don't remember, you know, what

1 exactly the wording is. But the ATSDR
2 document is one example.

3 Are there other examples of what I
4 cited? Maybe. I don't remember that I've
5 memorized all the government documents and
6 publications.

7 MR. RYAN: How are we doing on time?

8 MR. KLOTZBUCHER: About an hour.
9 57 minutes.

10 MR. RYAN: All right. You guys want
11 to keep going, or is this a good time to
12 take a break?

13 MR. LEE: Let's take a quick break.
14 Let's go off the record if we can.

15 THE VIDEOGRAPHER: Going off the
16 record at 12:38 p.m.

17 (Whereupon, a recess was taken.)

18 THE VIDEOGRAPHER: We are back on
19 the record at 12:47 p.m.

20 BY MR. RYAN:

21 Q. Dr. Felsher, I want to turn back to
22 your amended Hill report, which is Exhibit 3,
23 and your Keller report, which is Exhibit 4.

24 A. Yes, Mr. Ryan.

25 Q. On page 27 there's an "Exposure

1 History" section.

2 A. On both of them?

3 Q. On both of them.

4 A. Okay.

5 Q. So for the Hill report it's page 27;
6 for the Keller report it's page 27 to 29.

7 A. Okay. I have 28 and 27.

8 Q. For which one?

9 A. So for Keller I think you're talking
10 about page 28. Is this what you're talking
11 about, this table?

12 Q. Yes.

13 A. Okay. So that's on page 28.

14 And on Hill, the amended, I have it
15 on page 27 in my copy.

16 Q. Okay. Forgive me, I'm just trying
17 to find my place here.

18 In both reports for the Hill -- the
19 amended Hill and the Keller report, in the
20 Exposure History sections you opine that
21 Mr. Hill and Mr. Keller had significant exposure
22 to VOCs during their time at Camp Lejeune, is
23 that correct?

24 A. Well, I'm not sure the specific text
25 you're referring to. I do characterize their

1 exposure, and I believe their exposure was
2 significant in the sense that I'm opining that
3 that exposure was a cause of their cancers, not
4 the only cause, but a cause.

5 If there's specific text you're
6 asking me about, I'd have to be pointed to it.

7 Q. Understood.

8 I don't see in your reports where
9 you define what significant exposure is. Do you
10 have a definition that you would say what
11 constitutes significant?

12 A. Sitting here I don't remember
13 there's a section where I'd give a definition of
14 significant. But you've already asked me
15 previously and I volunteered that significant
16 would include to me that the contribution would
17 be sufficient, that based on my expertise as a
18 scientist and doctor reviewing the science and
19 reviewing in this case the specific records and
20 other expert reports that are part of my
21 consideration, that I am listing the VOCs as
22 something that I would put as one of the causes.

23 So to me, if it's something that as
24 a doctor or a scientist I can say this is a
25 cause, it's one of the causes I would list as a

1 cause.

2 Q. Okay. Can you tell me what an
3 exposure to a VOC -- when you said VOC, you're
4 talking about a volatile organic compound?

5 A. Yes, in this case I'm referring to
6 the specific chemicals tetrachloroethylene,
7 trichloroethylene, vinyl chloride, and benzene.

8 Q. Okay. Can you tell me when an
9 exposure to those VOCs is not significant?

10 A. Well, I wouldn't know it's signi --
11 so that requires a bit of a narrative answer.

12 Certainly one issue would be if the
13 exposure happened after the diagnosis, that
14 would be an example of where I would say, well,
15 that's not significant, because how could I say
16 something caused somebody if it didn't proceed.

17 The second are considerations about
18 a knowledge of the other issues regarding the
19 characterization that are included here, such as
20 I have estimates of the amount of exposure,
21 times of exposure, and how they relate to the
22 diagnosis. So those are all amongst the
23 considerations.

24 And then I have an awareness of
25 amounts based on what I've already talked about

1 in the deposition for general causality that
2 have been associated generally with a risk of
3 hematopoietic cancers including leukemia and
4 non-Hodgkin's lymphoma, amongst other
5 considerations. Those would include some of the
6 considerations.

7 Q. So you mentioned there if an
8 exposure happened after a diagnosis, it wouldn't
9 be significant.

10 Is there instances where the
11 exposure happened long before the diagnosis
12 where you would determine that the exposure was
13 not significant?

14 A. In some contexts that might be the
15 case. It would depend on other considerations
16 that I could discuss. But the timing is one
17 consideration, the timing of exposure and the
18 occurrence of disease.

19 Q. For NHL or DLBCL, is there an
20 exposure period that happened long before the
21 diagnosis that you would consider was too far to
22 be a significant cause of NHL?

23 A. It would depend on -- I mean, it
24 would depend on what we're talking about in
25 terms of exposure.

1 In both of these cases the
2 individual was exposed in a time period that,
3 consistent with my understanding of the
4 pathogenesis of their diseases, I believe more
5 likely than not it was contributing to the
6 cause, based on the time they were exposed and
7 the relationship between the diagnosis.

8 Chronic lymphocytic leukemia is a
9 more slowly progressing disease. And just as we
10 know from Mr. Hill, he, in retrospect, had
11 evidence suggestive of disease years before he
12 was diagnosed because he had a leukocytosis. At
13 the time he wasn't diagnosed, claiming a mistake
14 was made, but in retrospect I believe that's
15 likely when he first started having a clinical
16 presentation of his disease.

17 Immunoblastic lymphoma, large cell
18 lymphoma is generally a kind of -- it's also
19 hematopoietic cancer, is more like a --
20 relatively more like a sports car. Chronic
21 lymphocytic leukemia is more like an old grandma
22 car.

23 An old grandma car grows slowly, it
24 can take longer to realize there's something
25 wrong, when you look under the microscope it

1 doesn't look particularly exciting.

2 Immunoblastic lymphoma, the cells
3 look all amped up and it's easier to tell
4 they're abnormal, and they tend to be -- they
5 actually are remarkably similar diseases in one
6 sense. They're both diseases of your B-cell
7 lymphocytes. They both are genetically caused.
8 They can both be caused by the same
9 precipitating exposure.

10 But in one case you've genetically
11 caused damage to an amped-up lymphocyte, and
12 that lymphocyte behaves like a more reckless
13 car, and the other case it's like an old man and
14 the disease behaves that way.

15 And that's -- Mr. Hill's had a
16 progression, slowly responded, reoccurred.
17 Mr. Keller's had a more aggressive disease,
18 treated much more aggressively, and he's had a
19 better response. But he had a disease that if
20 nothing had been done would have killed him very
21 quickly, whereas Mr. Hill has a disease that
22 often is untreated initially and at first
23 doesn't cause problems, and then he's had many
24 of the problems that you have of the disease.

25 So all of that and many more details

1 would be amongst many, many details I would
2 consider in the contribution of these chemical
3 exposures and their cancer. I'm not surprised
4 at the temporality. The temporal associations
5 of diseases can be different.

6 And if the exposure had happened
7 when they were much younger, would I have less
8 regarded it? Not necessarily based on my
9 understanding of the pathogenesis of cancer.

10 If you were able to prove to me they
11 really weren't exposed until after they were
12 diagnosed, I still might have an opinion that it
13 would not be a good thing to expose a mutagen to
14 somebody with cancer for other reasons. It
15 could make their cancer much worse. We know
16 that scientifically. But I would find it harder
17 to say that it was a cause if it had happened a
18 day before, similarly. But in this case the
19 temporality is consistent with the general
20 understanding of the relationship between
21 exposure and cause for these diseases.

22 Q. Okay. Looking at your Keller
23 report, the chart we mentioned earlier on
24 page 28.

25 A. Yes.

1 Q. This is Exhibit 4.

2 Did you prepare this chart?

3 A. I'd helped preparing in both
4 cases -- or all three cases the chart. The
5 chart was something from a document that I saw,
6 but this was typed in from the document that I
7 reviewed for me.

8 Q. Okay. And this was taken, I
9 believe, from Appendix J of Morris Maslia's
10 expert report, right?

11 A. That's what I recall.

12 Q. Okay. And on page 28 of the Keller
13 report, it states Mr. Keller was exposed to the
14 water at Hadnot Point for approximately
15 525 days.

16 Is that correct?

17 A. That's what it states, and to my
18 knowledge that's correct based on the documents
19 I've reviewed.

20 Q. Okay. And then on the chart on
21 page 28, there's a column on the left, "Exposure
22 Start" and "Exposure End," and then it lists
23 dates between November 30, 1985 and December 31,
24 1987, is that right?

25 A. That's what it looks like to me. I

1 believe you're looking at the table correctly.

2 Q. And where did you look to get these
3 dates?

4 A. I mean now, at this point, I don't
5 remember where they were in Maslia's report.

6 Q. Well, so Maslia's report wouldn't
7 have given dates specifically for Mr. Keller,
8 right?

9 A. I'm sorry, it's Reynolds, I believe.

10 Q. Okay. Understood.

11 A. Yeah. That's confusing because, as
12 I say, you know, Maslia provided part of the
13 information, and then Dr. Reynolds' report -- I
14 believe Dr. Reynolds provided details and
15 estimated days and tried to provide more of the
16 chronology.

17 Sitting here, I reviewed those a
18 while ago, and I'm sorry if I'm conflating both
19 reports to some extent. Clearly I'm describing
20 here that I'd reviewed both.

21 Q. Okay. So the exposure dates
22 specific for Mr. Keller, those were -- you
23 relied on Dr. Reynolds' report for those, right?

24 A. I believe so. I know that there's
25 also information based on deposition testimony

1 that provides some additional information, as
2 independently they provide some documentation of
3 when they were at the Camp Lejeune location.

4 But Dr. Reynolds with more
5 granularity made an effort to determine what
6 days they actually were present. And we already
7 talked about the issue of redeployment and -- or
8 deployment, I think it was referred to.

9 Q. Okay. So for page 27 of your
10 amended Hill report, which is Exhibit 3, you
11 have a similar chart here. And the exposure
12 dates in your chart, is it fair to say that you
13 also relied on Dr. Reynolds' report for the
14 exposure dates for Mr. Hill?

15 A. Well, in part. As I just explained
16 to you, I'm relying on Maslia and Reynolds in
17 part. I also, as I've described already in the
18 deposition, had seen deposition testimony.

19 I also am aware of information
20 that's published, stated in government reports
21 or published, for example, in Bovey that
22 provides some additional information regarding
23 exposure, and I believe much of that is
24 described in my general causality report, if not
25 all that I've described as.

1 Q. So, okay. In your Hill report,
2 Exhibit 3 on page 24.

3 A. Yes.

4 Q. Towards the bottom there's a section
5 titled "Residential History."

6 Do you see that?

7 A. Yes.

8 Q. Did you prepare this chart?

9 A. I don't believe. I don't recall
10 making the chart. I believe the information I
11 knew about, but it was prepared for me.

12 Q. Do you know who prepared the chart?

13 A. I'm not sure sitting here right now.
14 I believe it was likely part of the legal team
15 that I was interacting with.

16 Q. Okay. And on page 22 of the Hill
17 report --

18 A. Yes.

19 Q. -- there's an "Occupational History"
20 section with another chart.

21 Do you see that?

22 A. Yes.

23 Q. Did you prepare this chart?

24 A. Well, the actual chart I didn't
25 physically prepare. But again, all this

1 information I'd seen and reviewed as part of the
2 medical records and/or deposition testimony.

3 Q. Okay. And would this be someone
4 from your legal team that prepared this chart?

5 A. Well, I wouldn't characterize it as
6 my legal team, but I would characterize it as --
7 because again, you're implying that I need a
8 legal team, which I believe in this circumstance
9 I don't.

10 I believe it was a member of the
11 lawyers who helped put the information that I
12 knew about and considered a summary.

13 Q. I'm certainly not implying you need
14 a legal team, Dr. Felsher.

15 A. I understand, Mr. Ryan. I know
16 you're not, but the record will read funny if I
17 don't actually say something.

18 Q. Fair enough.

19 And so the Occupational History
20 section, there is individual cites to certain
21 things in the record including, you know,
22 Mr. Hill's deposition transcript. There's some
23 reference to some, looks like military records.
24 For example, in September 1976 to 1978 on
25 page 23, it states Mr. Hill was in the US Navy,

1 stationed on the USS Guam as an aviation
2 boatswain's mate, and there's a citation to his
3 transcript as well as a document titled
4 28_HILL_1179.

5 Do you see that?

6 A. Yes.

7 Q. You would have reviewed that
8 document, right?

9 A. If it's listed that it was provided
10 to me, then I reviewed it. Sitting here right
11 now just based on the number, I don't remember.
12 I do remember reviewing the deposition.

13 Q. In your analysis of the exposures
14 for Mr. Keller and Mr. Hill, did you assume that
15 all of Camp Lejeune was contaminated the entire
16 time that they were on Camp Lejeune?

17 A. No. No. I know based on the
18 factual history and documents available to me
19 and I believe government and published reports
20 that not all the wells were contaminated. Many
21 of them were, but not all of the wells were
22 contaminated.

23 Q. Specific to the time periods that
24 Mr. Hill and Mr. Keller were there, are you
25 aware of what the contamination of the wells

1 that they would have been living and doing their
2 jobs by?

3 A. I'm aware in the sense that I
4 reviewed and knew. I can't say that I memorized
5 the complexity of it. But I know, for example,
6 the reason why for -- in the Keller document
7 benzene is listed, but in the Hill document all
8 four of the relevant volatile organic chemicals
9 are listed, is that I knew that I had reason to
10 know that Mr. Keller was exposed to benzene, and
11 I knew -- I had reason to know that based on the
12 history and what we know factually that Mr. Hill
13 was exposed to all four chemicals. And so
14 that's an example reflecting, you know, some.

15 And I'm aware that not every place
16 was contaminated the same way, and that it was a
17 history to this, and I've reviewed this, but I
18 hardly would pretend I memorized exactly. And
19 I'm relying on other experts to provide those
20 details.

21 It was provided to me, I know about
22 it, but I'm relying on other experts who had
23 actually investigated, looked, and providing me
24 information and what they counted when when
25 somebody was exposed.

1 But I can tell you based on the
2 government reports and published records that I
3 know at a higher level that more likely than not
4 they were both exposed to the chemicals that I'm
5 describing in these reports.

6 Q. For the charts on page 27 of the
7 amended Hill report, page 28 of the Keller
8 report, did you independently verify the
9 volatile organic compound concentrations as
10 listed in these charts?

11 A. I'm not sure what it means to
12 independently verify. I didn't make
13 measurements myself, if that's what it means. I
14 don't know how I would have. I didn't -- I am
15 relying on estimates that other experts have
16 made.

17 But as I've described, there are
18 also estimates generally provided by multiple
19 government documents. There are also estimates
20 provided by published documents.

21 The numbers provided here I'm
22 relying on Maslia and Reynolds, but -- to the
23 best of my knowledge. But if verifying or
24 considering includes the fact that I'm aware of
25 government documents and published documents, to

1 the best of my knowledge, my understanding is
2 that your experts describe that there's
3 exposure. I didn't think that was something
4 that is being argued about, that there weren't
5 chemicals that people were exposed to. There
6 may be other arguments.

7 I've reviewed Goodman's report and
8 publications from Goodman, for example, who
9 works at Gradient, and some of the other
10 experts.

11 Q. Understood.

12 A. Which reminds me, I forgot to
13 mention that when I reviewed Goodman, she uses
14 "equipoise" and "above" in her published papers.
15 So your own expert apparently uses this in
16 published papers as a way to describe science.

17 So I think if an expert working for
18 a company, for Gradient, the Department of
19 Justice hires, uses that as a way of describing
20 findings in their published papers, I guess it's
21 common knowledge. They certainly didn't go out
22 of their way to avoid using this description.
23 It was something quite remarkable when I
24 reviewed papers that she reported.

25 Q. I'm showing you what I'm marking as

1 Felsher Exhibit 13, which is -- this is Appendix
2 J of the expert report of Morris Maslia.

3 A. Thank you.

4 (Whereupon, Exhibit Felsher 13 was
5 marked for identification.)

6 BY MR. RYAN:

7 Q. Do you recognize this document? And
8 take time to review it.

9 A. So as much as I can tell, I
10 recognize the document. The challenge is you're
11 printing it out, which is totally fair, and I
12 saw it as an electronic document, and generally,
13 as I believe many of them are huge, like an
14 Excel file, they are huge.

15 And so as much as I can tell, this
16 is the same thing, but it's not exactly what I
17 reviewed. I didn't review a physical copy.

18 Q. Understood.

19 A. Thank you.

20 Q. If you turn to page 235. And I've
21 premarked it, you see the red tab --

22 A. Yes, I'm there.

23 Q. -- just to make it easier for
24 everybody.

25 A. I'm there. Thank you.

1 Q. This page sets out water modeling
2 data for Hadnot Point in the 1980s.

3 Does that look right?

4 A. Reconstructed monthly simulated. I
5 believe if it's simulated, if this is talking
6 about the modeling, and it does look like it's
7 Hadnot Point, I believe that is what this shows.

8 Q. Okay. Is this the portion of
9 Appendix J from Morris Maslia's expert report
10 that you relied on when putting in the numbers
11 in that chart on the Hill report?

12 A. I'm just -- it looks like, as much
13 as I can tell, the numbers are not exactly the
14 same, so I don't remember. Maybe they are
15 exactly the same. I'm sorry, they are exactly
16 the same.

17 Q. Yeah, that's perfectly fine.

18 A. I'm just checking. They look
19 exactly the same. I thought maybe you were
20 asking me a question and trying to trick me.

21 Q. I'm not trying to trick you this
22 time.

23 A. Hey, I don't trust you, you've tried
24 to trick me too many times. You've twice asked
25 me about my legal counsel.

1 Q. From my review, the numbers match
2 what's on page 27.

3 A. It looks like it matches.

4 Q. Okay. I notice in this chart on
5 Appendix J it includes values for
6 dichloroethylene.

7 Do you see that?

8 A. Yes.

9 Q. Is there a reason why you didn't
10 include these exposure concentrations on page 27
11 of the Hill report?

12 A. Not in particular that I can say
13 sitting here right now, other than that in my
14 consideration, I was aware of generally more
15 evidence for -- the most evidence for benzene
16 and trichloroethylene as being a cause of
17 cancer, significant emphasis for vinyl chloride,
18 albeit less in regarding to hematopoietic
19 cancers, and the least relatively just
20 scientifically for PCE.

21 So I think those -- the chemicals
22 that I considered the most were chemicals in
23 which there's more relative consideration that
24 they would be important potential causes.

25 But I'm glad to consider DCE if you

1 want me to.

2 Q. No.

3 My question is, if it wasn't
4 included, dichloroethylene, is it your opinion
5 that that VOC wouldn't be a causative factor of
6 Mr. Hill's CLL?

7 A. Well, sitting here right now, I
8 can't say I've thought about this recently, so
9 I'd just say I don't have an opinion.

10 I do have an opinion on benzene,
11 trichloroethylene, and tetrachloroethylene. All
12 of them can be a cause. Vinyl chloride is a
13 cause of cancer, but I believe in my general
14 causality I concluded it was less likely to be
15 something that had been proven to be a cause of
16 hematopoietic cancers like lymphoma and leukemia.

17 Benzene very compellingly is a
18 cause, and while this legal case has been
19 proceeding, the evidence has become even more
20 compelling that benzene can be a cause of
21 hematopoietic cancers based on multiple published
22 papers linking benzene to lymphoma and leukemia,
23 and then also additional papers linking benzene
24 to other cancers.

25 So the evidence that it is a

1 carcinogen have been remarkably substantiated
2 for multiple recent studies, which are a large
3 part of the studies that were in my supplemental
4 information considered was these papers that I
5 found, making it even more compelling and
6 concerning that individuals at Camp Lejeune were
7 exposed to benzene.

8 Q. Are there any more recent
9 publications that you discussed linking benzene
10 with certain cancers that weren't included on
11 your supplemental materials considered?

12 A. There are -- I do know there are
13 other recent papers that say that benzene can be
14 a cause of cancer. In some cases I noticed, and
15 I didn't include every paper I found, because in
16 some cases they were evidence for solid tumors.
17 There's lots of literature on specific aspects
18 of benzene that are complicated science, about
19 mechanism.

20 I didn't include every paper that I
21 found suggesting the mechanism by which benzene
22 causes hematopoietic toxicity and can interfere
23 with the immune system, simply for the sake of
24 not obfuscating conclusions by providing --
25 bludgeoning the record with records.

1 But any paper that you found that
2 you want me to consider I'm glad to consider and
3 tell you if I've seen it or thought about it or
4 considered it if it wasn't listed.

5 Q. So turning back to the Exhibit 13,
6 the chart we just looked at, are you aware that
7 this comes from a chapter of a 2013 report
8 prepared by the ATSDR summarizing its water
9 modeling for Hadnot Point?

10 A. You're talking about the Maslia?

11 Q. Yes, the Maslia report.

12 A. Yeah, I believe that's what I
13 actually describe in my -- I thought I described
14 that in my report, that these come from another
15 document -- or the information comes from
16 another document.

17 Q. I'm showing you exactly what I just
18 said. This is Chapter A: Summary and Findings
19 of a 2013 ATSDR report for Hadnot Point. I'm
20 marking this as Exhibit 14.

21 (Whereupon, Exhibit Felsher 14 was
22 marked for identification.)

23 A. Thank you.

24 BY MR. RYAN:

25 Q. Take all the time you need to review

1 it, and when you're ready, my question is do you
2 recognize this.

3 (Witness reviewing document.)

4 A. So it's a physical document, and if
5 I had seen something, it would have been an
6 electronic document. And I don't recall whether
7 or not I've seen the full chapter. I don't
8 recall if I cited it.

9 If I've looked at it, I haven't
10 looked at it recently, certainly not in
11 preparation for today. I was aware of it being
12 from a chapter, the information that we're
13 talking about in that table.

14 Q. Did you review this document when
15 you were preparing your Hill or Keller reports?

16 A. Well, did I -- I don't remember if I
17 listed it or not.

18 Did I list it?

19 Q. I don't see that it's listed.

20 A. Then I don't recall that I reviewed
21 it. I may have seen it at some point, but I
22 can't tell you sitting here today that I
23 reviewed it if I didn't list it, and I don't
24 recall reviewing it in detail.

25 Q. Okay. If you'd please turn to page

1 A168, you'll see towards the top I've premarked
2 some things. It's going to be one of those.

3 A. Okay. A --

4 MR. LEE: What's the number again?
5 I'm sorry.

6 MR. RYAN: A168.

7 THE WITNESS: I see A168.

8 BY MR. RYAN:

9 Q. Okay. Do you see that this page
10 sets out the water modeling for Hadnot Point in
11 the exact manner as from the Appendix J of
12 Maslia's report, which is Exhibit Number 13, is
13 that right?

14 A. Well, I haven't reviewed the chapter
15 so I can't say it's exactly the same.

16 What I can see is that, as much as I
17 can tell quickly looking at it, the table looks
18 to be the same table unless there's something
19 different I'm not noticing by looking at it
20 briefly.

21 Q. Okay. You're aware that plaintiff
22 Bruce Hill, he was at Camp Lejeune from
23 July 1983 to May 1985, right? That's his
24 exposure period?

25 A. It will be stated in my report. If

1 we're citing the report we can look at it. I
2 haven't memorized the exact dates sitting here,
3 but I know it's in my report.

4 Q. Okay.

5 A. And whatever the facts are the
6 facts.

7 Q. In looking at this ATSDR water
8 modeling chart on Exhibit 14, do you see that
9 from July 1983 through May 1985, ATSDR modeled
10 PCE as between 0 and 39 micrograms per liter?

11 A. July 1983 to when?

12 Q. Until May 1985.

13 A. And you're saying it went from what
14 to what?

15 Q. I'm saying they modeled PCE as
16 between 0 and 39 micrograms per liter.

17 A. Okay. I do see the highest number
18 is 39 and I see numbers that are 0, so that
19 appears to be factually correct.

20 Q. Okay. And in water, 1 microgram per
21 liter is equal to 1 parts per billion, right?

22 MR. LEE: Objection to form.

23 THE WITNESS: Yeah, I mean, it can
24 be. I mean, the actual precise could
25 be -- it could be an approximation. You

1 know, I don't know the exact calculation
2 just sitting here. I'd have to look up
3 the exact calculation.

4 BY MR. RYAN:

5 Q. Okay. If I state these values in
6 parts per billion, would you understand me?

7 A. If you give me parts per billion, I
8 understand you. I'm just telling you sitting
9 here right now I can't calculate it, and usually
10 these calculations are affected by other
11 considerations for the actual amount. You can
12 approximate, but obviously water can have a
13 different density depending on issues like
14 temperature, and there are other issues that can
15 make it -- the exact number, you know, that we
16 would qualify.

17 Q. Okay. Looking at this chart on page
18 A168, do you see that from July 1983 through
19 May 1985, the ATSDR modeled TCE as between 0 and
20 783 micrograms per liter?

21 A. Yes, that seems to be factually
22 correct.

23 Q. And from July 1983 through May 1985,
24 the ATSDR modeled benzene as between 2 and
25 12 micrograms per liter, is that right?

1 A. I believe that's factually correct.

2 Q. Okay. And if you just turn to page
3 A174 on Exhibit 14. That's the next tab, I
4 believe.

5 A. Yes.

6 Q. Do you see this sets out PCE
7 modeling data as to Paradise Point, right, this
8 chart, page A174?

9 A. A174. I see Hadnot Point and
10 Holcomb Boulevard water treatment, and point --
11 Holcomb Boulevard study area. Am I looking at
12 the wrong...

13 Q. No, you're looking at the right
14 thing.

15 So you see they separate it by years
16 in the chart, 1972, '73, '74, and so on?

17 A. Yes.

18 Q. You'll see that the top left of the
19 chart they have the initials PP?

20 A. Yes.

21 Q. And that's defined above as Paradise
22 Point, correct?

23 A. Yes.

24 Q. Okay.

25 A. That's factually correct.

1 Q. And you're aware that from
2 December 1983 to May 1985, Mr. Hill resided at
3 Paradise Point on Holcomb Boulevard?

4 A. I don't remember the exact timing.
5 If that's the facts, the facts are whatever the
6 facts are.

7 Q. Okay. Would it surprise you if that
8 were the facts?

9 A. I don't know if I'd be surprised or
10 not surprised. If I've memorized all the
11 locations of all the places we've been, it will
12 be summarized somewhere in my report.

13 Q. Understood.

14 Okay. So looking at A174, you agree
15 that ATSDR modeled 0 PCE as to Paradise Point
16 during the month of December 1983?

17 A. Well, if that's the fact. This
18 document I haven't reviewed, and I see the table
19 and I see the numbers, but I haven't reviewed
20 this chapter or this specific table, so I only
21 can see the number. So I don't know that I have
22 an opinion on other than that I see -- factually
23 I see a number 0.

24 Q. Understood.

25 Are you aware that this modeling

1 data on page A174 was also included in Appendix
2 K of Morris Maslia's expert report?

3 A. Not sitting here today did I
4 remember a chapter I haven't seen and all the
5 tables that were put in Maslia's report. If you
6 want to show me Maslia's report, I could say
7 whether I've seen this information. But this
8 appendix I hadn't seen before, to my memory.

9 Q. Understood.

10 Okay. And you see in this chart
11 that the ATSDR modeled 0 PCE as to Paradise
12 Point during all months of the year 1984?

13 A. As much as I can see, having not
14 reviewed this, I see factually there's zeros. I
15 don't know what the modeling is or what I'm
16 looking at. I haven't reviewed this document
17 before.

18 Q. Okay. And do you see in 1985 the
19 ATSDR modeled 2 micrograms per liter PCE in
20 January 1985 and 3 micrograms per liter PCE in
21 February 1985, right?

22 A. I don't know if it's right, but
23 factually I see the numbers. You're reading
24 them correctly.

25 Q. And the ATSDR modeled 0 PCE as to

1 Paradise Point for all remaining months in 1985.

2 Do you see that?

3 A. Looking at this table, that appears
4 to be what I see. I don't know that I've ever
5 seen this before.

6 Q. If you look at the next page, page
7 A175.

8 A. Yes.

9 Q. This sets out TCE modeling data as
10 to Paradise Point.

11 Do you see that?

12 A. Where are you looking at?

13 Q. Up towards the top, do you see it
14 says, "Reconstructed (simulated) monthly mean
15 trichloroethylene concentrations in finished
16 water distributed to Holcomb Boulevard family
17 housing areas"?

18 A. Okay, I see where you're reading. I
19 don't recall reviewing this table before.

20 Q. Do you see in the chart on page A175
21 that the ATSDR modeled 0 TCE in December 1983
22 for Paradise Point, right?

23 A. I see where you're looking. I don't
24 know if it's right or not. I hadn't reviewed
25 this chapter, I haven't reviewed this table

1 before, to my knowledge.

2 Q. Okay. And in the chart, do you see
3 in 1984 the ATSDR modeled 0 TCE in Paradise
4 Point?

5 A. I see where you're reading. I see
6 the number there. That seems to be factually
7 correct for this particular table I haven't seen
8 before.

9 Q. Understood.

10 And for 1985, the ATSDR modeled 34
11 parts per -- well, I'll say it in micrograms, 34
12 micrograms per liter TCE in January in 1985 and
13 66 micrograms per liter TCE in February of 1985.

14 Do you see that?

15 A. Yes, I see you're reading -- where
16 you're reading. I see those numbers.

17 Q. And they modeled 0 benzene at
18 Paradise Point for -- excuse me.

19 They modeled 0 TCE in Paradise Point
20 for all remaining months in 1985, right?

21 A. I don't know if it's right, but I
22 see the numbers factually. I haven't seen this
23 table before. I haven't seen the document
24 before so I can't say if it's right.

25 Q. Please turn to page A178. It might

1 be the -- it's the last page of the document.

2 A. Yes, I'm there.

3 Q. Okay. Do you see at the top this
4 sets out monthly benzene concentrations for
5 Holcomb Boulevard family housing areas, right?

6 A. Well, I don't know if it's right,
7 but I see what you're reading.

8 Q. Okay. And do you see that the ATSDR
9 modeled 0 benzene at Paradise Point during all
10 months for the years 1983 to 1984?

11 A. I see where you're seeing the
12 numbers. I haven't seen this before, but I see
13 that factually the numbers are 0 in the
14 document.

15 Q. Okay. And in January 1985, the
16 ATSDR modeled 1 microgram per liter of benzene,
17 right?

18 A. I don't know if it's right, but I
19 see where you're looking, and you're reading it
20 correctly.

21 Q. The ATSDR also modeled 0 benzene as
22 to Paradise Point for all remaining months in
23 1985.

24 Did I read that right?

25 A. You read it correctly to the best I

1 can tell.

2 MR. RYAN: How are we doing on time?

3 MR. KLOTZBUCHER: 50 minutes.

4 MR. RYAN: Do you guys want to break
5 for lunch?

6 MR. LEE: Sure. Since you finished
7 that particular document, certainly.

8 THE VIDEOGRAPHER: We're going off
9 the record at 1:33 p.m.

10 (Whereupon, a luncheon recess was
11 taken.)

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1 AFTERNOON SESSION

2 THE VIDEOGRAPHER: We are back on
3 the record at 2:16 p.m.

4 BY MR. RYAN:

5 Q. Dr. Felsher, I want to direct your
6 attention back to the chart in your Keller
7 report, Exhibit 4, on page 23.

8 A. Yes.

9 Q. The concentration values you list
10 for benzene in this report, that was taken, I
11 believe you've previously stated, from
12 Appendix J of Morris Maslia's report, correct?

13 A. I believe so.

14 Q. And similar to the values in the
15 Hill report, are you aware that the water
16 modeling concentrations for benzene that
17 Mr. Maslia pulled in Appendix J of his report
18 were pulled from the Chapter A of the 2013 ATSDR
19 modeling report?

20 A. I believe I'm aware that they were
21 pulled from this other document, as much as I
22 can tell.

23 Q. Understood.

24 So if you look at -- back at
25 Exhibit 14, which was that -- the Chapter A of

1 the ATSDR, and look at page A169. It's going to
2 be marked by one of the tabs.

3 Are you there?

4 A. Yes.

5 Q. Okay. You'll see at the top of this
6 page, this page sets out water modeling data for
7 Hadnot Point from November 1985, beginning on
8 page A169, through January 1988 on page A170, is
9 that correct?

10 A. Again, I hadn't seen the actual
11 chapter, but as much as I can tell looking at
12 that, the actual table for -- it looks like
13 that's correct.

14 Q. And during that time period, do you
15 see on the chart that the ATSDR modeled PCE as
16 0 micrograms per liter?

17 A. From which date to which date are
18 you looking?

19 Q. From November 1985 to January 1988.

20 A. Yes.

21 Q. And during that time period the
22 ATSDR modeled benzene as between 2 to 4
23 micrograms per liter?

24 A. I see that, yes.

25 Q. Did you review this chart in the

1 ATSDR report when preparing your Keller report?

2 A. I don't believe I reviewed the
3 chapter. And I think the key thing is, what
4 seems to be -- you seem to be confused by is I'm
5 relying on these other experts, but I can
6 clearly tell you these individuals were in
7 different locations. In some of the locations
8 they were exposed to carcinogens that caused
9 cancer, and I know they sometimes were in
10 locations where there weren't chemicals.

11 That doesn't change my opinion. I
12 believe they were exposed exactly as I document
13 in my report to multiple chemicals, they're
14 genotoxic, they work by multiple mechanisms
15 synergistically, based on my understanding of
16 the science for both of these individuals.

17 So if you pull tables that I haven't
18 seen before that show zeros that are not
19 relevant because I know they were exposed in
20 places they were, what difference does it make?

21 Q. So reviewing this chart in
22 Exhibit 14 doesn't change your opinions on any
23 exposure Mr. Keller may have had?

24 A. Well, you walked through times where
25 depending upon where they lived or worked or

1 where they physically were whether or not they
2 were exposed or not exposed, but that's kind of
3 like saying somebody walked across the street
4 and got run over by a car because there were
5 cars there and you told them to close their
6 eyes, but they were somewhere where there
7 weren't cars and they didn't get run over, so it
8 was fine that you told them to go somewhere
9 where they'd get hit by a car.

10 Both of these individuals were
11 exposed to chemicals from Camp Lejeune
12 unknowingly. That's what I cite. I know that
13 not all the locations, we've already talked
14 about that.

15 So you can find -- we can go through
16 the chapter and you can walk me through examples
17 of where a particular chemical was not present
18 or was present, and I'll say that my opinion is
19 that based on when I know they were exposed, and
20 the times they were exposed and what they were
21 exposed to, that it was clearly a reason for me
22 to consider the possibility this was a cause of
23 cancer, and I'm telling you, based on my
24 opinion, it was.

25 It's particularly in the case of

1 where you have exposures to multiple
2 carcinogens, multiple mechanisms is particularly
3 concerning, and benzene itself is particularly
4 concerning as a carcinogen alone.

5 Q. Okay. If you could turn to page A12
6 on Exhibit 14.

7 A. Of course.

8 Q. Under the top section you're going
9 to see Hadnot Point wells number 602 and 608?

10 A. I see 602. I see 608.

11 Q. Are you aware this chart shows that
12 the only wells that were ever found to have been
13 contaminated at Hadnot Point were closed by
14 February 1985, and that would be these two, 602
15 and 608?

16 A. I'm not aware one way or the other.
17 I see the table. It's a complex table. I had
18 reviewed this table. I am aware that there's a
19 history of wells closed, open, some had
20 contamination, some didn't.

21 I believe based on my understanding
22 of what I've reviewed, I know both these
23 individuals were exposed to water that was
24 contaminated, and based on that information it
25 doesn't -- I'm able to give you the opinion that

1 it could be a cause generally, and specifically
2 I believe that their exposures were a cause of
3 their cancers.

4 Q. When forming those opinions, did you
5 review this page A12 on Exhibit 14?

6 A. Well, I already told you that I
7 don't believe I've reviewed or seen this
8 chapter. I see this complicated table. I see
9 that this chapter -- you walked me through where
10 I believe there's a reason that I know that both
11 individuals were exposed to carcinogens.
12 Whether or not there was in all the wells or
13 which wells or when they were closed, those are
14 all, of course, important details, and relying
15 on other experts to go through the weeds of
16 figuring out which wells were involved and
17 whether or not there was an exposure, but based
18 on what I know, they were both exposed to
19 carcinogens, and that could be a cause and I
20 believe it was a cause of their cancers.

21 Q. No, I appreciate that. The purpose
22 of this exercise is just to walk through what
23 you reviewed and what you may not have in
24 forming your opinions.

25 Do you understand that?

1 A. Yeah, I think that's fair. And I
2 have already volunteered to you that I don't
3 recall and it wasn't listed in my reliance that
4 I had gone through the entire chapter. What
5 you've shown me so far, that I'm only seeing in
6 detail right now, I don't believe changes my
7 opinions.

8 Q. Okay. One more ATSDR report, then I
9 promise I'll get off it.

10 A. Oh, respectfully, Mr. Ryan, you can
11 ask me about whatever it is that you feel is
12 most helpful to you, and I will answer to the
13 best of my ability.

14 Q. I appreciate that.

15 A. Of course.

16 Q. Showing you what I'm marking as
17 Felsher Exhibit 15.

18 (Whereupon, Exhibit Felsher 15 was
19 marked for identification.)

20 BY MR. RYAN:

21 Q. This is Chapter C of the 2013 ATSDR
22 water modeling report titled Chapter C:
23 Occurrence of Selected Contaminants in
24 Groundwater at Installation Restoration Program
25 Sites.

1 Take whatever time you need to
2 review this, and my first question would be --
3 is have you reviewed this before?

4 (Witness reviewing document.)

5 A. So I don't believe I've reviewed
6 this before. I don't recall that I listed it on
7 my documents considered. I don't think I've
8 seen this before.

9 Q. Okay. If you could turn to page
10 C108 which is at Tab A-40.

11 A. Thank you. Yes, I'm there.

12 Q. Okay. There's a Table C12 on page
13 C108. It's a summary of analyses for benzene,
14 among other contaminants, in water samples
15 collected at the Hadnot Point Water Treatment
16 Plant at Camp Lejeune.

17 Do you see that?

18 A. I see where you're reading, yes,
19 Mr. Ryan.

20 Q. Okay. Do you see in this chart that
21 benzene was detected in water samples taken on
22 sample dates November 19 and December 10th and
23 December 18th of 1985, right?

24 A. Well, I know that's right. Looking
25 at this for the first time, what I can tell

1 compared to the 2013 document is the
2 measurements are clearly not as reliable,
3 because rather than saying they don't detect,
4 they give a limit of less than 10, which would
5 suggest that whatever way they were measuring,
6 and I don't know the details, was not very
7 quantitative or sensitive, certainly not enough
8 to make the determination of whether or not
9 there were levels that would be carcinogenic.

10 And I see a very high level in
11 11/19/1985 at 2500 and a high level at 1210. So
12 I find that -- it seems uninformative, that
13 whatever measurements they were making, they
14 were not very quantitative or not very sensitive
15 measurements.

16 Q. Understanding the limits of the
17 detection limit listed here, do you see on chart
18 C12 that none of the other water sample dates on
19 C108 were able to detect benzene even at levels
20 that could be detected but not quantified?

21 A. Respectfully, that's nonsense. That
22 would be like saying, you know, I have a way of
23 measuring height but I can't measure anybody
24 less than 5 feet tall. I think all of us would
25 qualify. But nobody -- none of the female

1 members in my family would. My wife is like
2 4'11" and half. Don't tell her I said that.
3 But you would say -- would you say she doesn't
4 exist?

5 A limited detection of 10 when we've
6 already talked about the fact that levels of 3
7 to 10, I'm going to tell you I believe are
8 significant. I would say unfortunately this
9 archived document -- and probably if we went
10 through the history we'd find out that they must
11 have tried to repeat the measurement a few years
12 later because they realized the measurements
13 they made, they must have been using a method
14 that was not particularly sensitive or
15 quantitative.

16 When you have a measurement that's
17 not quantitative sufficient to inform you, then
18 you don't say you didn't detect, what you say is
19 the test wasn't helpful.

20 I'd say this isn't helpful to me.
21 Granted, I haven't reviewed the whole chapter
22 and maybe there will be something else that will
23 be helpful to me, but my impression is, huh,
24 they really didn't know how to measure these
25 things in 2010.

1 Q. Well, there's water samples taken
2 the date listed, so 1984 through 1987?

3 A. Correct, correct. So they measured
4 them again realizing, well, we didn't really use
5 a very good method. I thank you for correcting
6 me and saying something that is spurious.

7 Clearly they remeasured, got values,
8 because for some reason 2010, whatever method
9 they used was not very sensitive.

10 Q. Do you see on the chart that the
11 water samples taken from all dates in 1986
12 showed no detection of benzene at levels that
13 could be detected and are quantified?

14 A. I don't see that. I see that they
15 had a crummy test that made a measurement that
16 could not detect a chemical at levels that would
17 be dangerous, and therefore I would say you'd
18 better go back to the drawing board, which
19 presumably is what happened, because they
20 realized, yeah, these are really crummy
21 measurements, we're not really using -- we could
22 look through and find out what was the actual
23 method they used, why was it insensitive, what
24 did they do that was inaccurate, why a few years
25 later did they remeasure and they suddenly could

1 detect measurements that appear to be
2 quantitative?

3 Q. Would you say in the detection limit
4 which they specify, what, as the 10 micrograms
5 per liter, it would have been at the very least
6 less than that?

7 A. I'd say if it's that inaccurate and
8 that insensitive, I would say these measurements
9 are not reliable. When you see a bunch of
10 things saying we can't detect anything at a
11 limit that we now know looking through today's
12 eyes, I would say do I trust the measurement?

13 It would be like if you said to me
14 you couldn't detect my wife because she's 5 feet
15 tall, but you know that I'm around 6 feet tall.
16 I'd say, What kind of measurement is that that
17 you can't measure somebody who's 5 feet tall?
18 I'd disregard that.

19 My point being that in the order you
20 presented the documents I haven't seen as a
21 scientist, my first impression is, huh, boy,
22 this tells the story of why the measurements are
23 retaken because, boy, they said 0 for a lot of
24 levels that are pretty high limit.

25 I mean, this routinely happens in my

1 lab. Somebody in the lab will make a
2 measurement. They'll show it to me and say,
3 We're concluding something. I say, No, you
4 can't conclude anything. Do the test again.
5 I've done that test. If you can't detect
6 anything, you're not doing it right. Do it
7 again where you can make a measurement where you
8 legitimately can say you're doing a test that
9 has the sensitivity to detect levels that are
10 relevant, that are biologically, medically
11 relevant.

12 Q. Okay. Turning to -- back to your
13 reports, Dr. Felsher --

14 A. Yes, yes.

15 Q. -- you mention that you relied on
16 the estimation of exposure for Mr. Keller and
17 Mr. Hill from Dr. Kelly Reynolds' report, right?

18 A. I believe, yes. I believe in part
19 I'm relying on Kelly Reynolds, in part I'm
20 relying on Maslia, in part I'm relying on
21 publications, other documents that describe
22 exposure or potential exposure.

23 Q. Are you aware that Dr. Reynolds used
24 cumulative total mass as an exposure metric for
25 the chemicals at issue in her report?

1 A. I'm aware that that was one of the
2 ways in which she quantified the exposure.

3 Q. Do you know whether this is an
4 accepted exposure metric in risk assessment?

5 MR. LEE: Objection to form.

6 THE WITNESS: Well, that's saying
7 two things at the same time. It depends
8 on what you mean by "risk assessment" and
9 depends on what you mean by "acceptable,"
10 and both of those would have to be defined
11 and put into a context.

12 You've just shown me a document,
13 saying it doesn't show anything, that I'm
14 telling you the test clearly I can tell,
15 having never seen the document, doesn't
16 mean anything to me.

17 And sitting here today, I'm not
18 saying something about risk assessment,
19 I'm saying something about whether or not
20 there was an exposure that individual
21 cases could be a specific cause.

22 So to me until you define these
23 things and I know what you're talking
24 about, you're asking -- you're putting two
25 things together that are completely

1 non-sequiturs to me.

2 I tell you, I believe I can rely on
3 Kelly Reynolds as providing me useful
4 information to tell me these individuals
5 were exposed during a period of time that
6 is significant in my mind based on my
7 understanding of the medicine and science
8 to be suggesting it could be a cause, and
9 I've concluded in these specific cases
10 that they are a cause.

11 I'm not telling you about a risk
12 because anything -- the word "risk" is
13 saying whether or not something will
14 happen. If I told you that I thought
15 Mr. Keller and Mr. Hill were going to get
16 cancer based on their exposure, you should
17 justifiably say, that's ridiculous,
18 Dr. Felsher, because they did get cancers,
19 what are you talking about risk? It would
20 be ludicrous.

21 It would be like me calling up
22 somebody and saying, you know, you might
23 get cancer. I did, Doctor. Oh, I'm
24 sorry. I was trying to warn you. Too
25 late. Risk doesn't mean anything really,

1 generally.

2 But, you know, if you want to
3 explain to me what you mean, we can go
4 into more granular detail.

5 BY MR. RYAN:

6 Q. In your reliance on Dr. Reynolds's
7 report, would you agree that you're assuming
8 Dr. Reynolds's methodology was reliable?

9 MR. LEE: Objection to form.

10 THE WITNESS: Well, broadly speaking
11 I would say I don't know how to answer a
12 question like that, because I'm relying on
13 aspects of what Reynolds did.

14 But methodology can refer to a lot
15 of different aspects, and I don't know
16 what you're asking me about and what's
17 reliable or not reliable. You would have
18 to be more specific.

19 I've told you that I can use
20 Reynolds, Maslia, published materials,
21 other government-associated documents to
22 tell me that these individuals were more
23 likely than not exposed to the chemicals
24 as we've already described and that could
25 be a cause, and in their cases and my

1 review of their specific circumstances I
2 believe they are a cause.

3 BY MR. RYAN:

4 Q. You're not an exposure assessment
5 scientist, are you?

6 A. Well, I'm not sure what you mean by
7 that. If you have a specific idea of what
8 you're referring to, I'm glad to qualify it.

9 I'm not calling myself those
10 combination of words, but I am a scientist. I'm
11 a scientist who is asked to consider things like
12 whether or not an exposure in a specific
13 circumstance can be a contributing cause.

14 But if that makes me a scientist who
15 uses exposure as one of the ways of thinking
16 about cause, then in that sense I'm certainly
17 more than a layperson exposure scientist.

18 If you have a specific job title
19 you're thinking about, or asking me if I work
20 for the ATSDR in a specific job category, I'd
21 say, well, no, that's not what I'm doing.

22 Q. Have you ever authored a risk
23 assessment report?

24 A. Well, it depends on what you mean by
25 that again. If we're talking about IRIS, no, I

1 haven't worked for IRIS. Actually the
2 government fired the head of IRIS. They're now
3 working at the California EPA. So technically
4 in that capacity they're now my boss when I work
5 for the California EPA.

6 If you were talking about have I
7 written a report where risk is part of what I
8 estimate by considering factors based on my
9 science and understanding, well, in that sense I
10 have expertise in thinking about, considering
11 risks, and making some estimation, and certainly
12 I'm aware of some aspects of the science.

13 But I'm not claiming to be a
14 scientist directly working for the EPA, so you'd
15 have to be more granular about what it is that
16 you are asking me.

17 But if you're asking me am I able to
18 think about the science of risk or make
19 estimates based on medicine and science, yes.

20 If you're asking me specifically
21 about ATSDR, I'll tell you that in every
22 document I read from ATSDR that I can think of,
23 in the preamble it says you cannot use this
24 document to tell about whether or not something
25 for a specific individual can be a cause, that

1 is done by a health professional. I am a health
2 professional.

3 Q. Are you aware what a maximum
4 contaminant level, or MCL, for chemicals is?

5 A. I've seen descriptions of MCL in
6 some context.

7 Q. Have you -- are you aware that the
8 EPA sets MCLs for chemicals?

9 A. I believe that the EPA is one of the
10 organizations that can describe the MCL in terms
11 of an environmental chemical. I don't know in
12 all contexts that the EPA is responsible. I
13 don't think they're responsible necessarily for
14 a worker, or there might be specific contexts,
15 but certainly the EPA is involved in that sort
16 of assessment.

17 Q. Are you aware of how the EPA
18 establishes MCLs?

19 A. I have some idea of how they think
20 about or determine, but I wouldn't say that I
21 know all the different methodologies. If
22 there's something specific or a document you
23 want me to look at and say, I'm glad to comment.

24 Q. Are you aware that MCLs are designed
25 to be acceptable daily drinking water

1 concentrations over a lifetime of exposure
2 around 70 years?

3 MR. LEE: Objection to form.

4 THE WITNESS: Well, it depends on
5 the context, but I'm certainly aware that
6 in many EPA risk assessments they'll
7 define lifetime as 70 years. Like in IRIS
8 documents that's a very typical
9 estimation.

10 BY MR. RYAN:

11 Q. Are you aware that the MCL for TCE,
12 PCE, and benzene is 5 parts per billion?

13 A. Well, I may or may not be aware. I
14 believe I've seen some of the numbers. I do not
15 find those as informative, because in my
16 knowledge of how the EPA establishes and
17 considers these numbers, in some contexts they
18 are not updated as quickly as the science has
19 changed, in terms of my understanding.

20 And I'm confident that the MCL for
21 benzene does not take into account the papers
22 published in the last two years that show very
23 large epidemiologic studies, relatively
24 speaking, hundreds of thousands of individuals
25 involved, also estimating environmental effects

1 and demonstrating that chemical exposures to
2 benzene over time can cause disease processes
3 including cancer at levels -- certainly the Yu
4 article describes at .2.

5 The Wang article says it did not
6 find a level of exposure in the levels within
7 the study that did not have some associated
8 risk, and they were much -- they were in the
9 neighborhood or lower, I believe, when
10 estimated. They used micrograms, and I believe
11 1 microgram's -- I believe 1 part per billion is
12 equivalent to something like 3.2 micrograms of
13 benzene.

14 So I can't do the calculation in my
15 head, but I believe the Wang and Yu article
16 suggested pretty low exposures were actually a
17 risk for cancer.

18 I doubt the MCL -- they're not --
19 those measures aren't updated quickly enough to
20 take into account science published over the
21 last few years. I can, which is part of the
22 reason the EPA will say things like to make
23 these sort of determinations requires an expert
24 with knowledge of the -- meaning the knowledge
25 of the science in a particular circumstance,

1 which I believe I'm not exaggerating to say that
2 would include somebody like me. At least the
3 California EPA also agrees with that.

4 Q. In your review of the materials in
5 this case, Mr. Keller and Mr. Hill's case, do
6 you assume that ATSDR's water modeling was
7 accurate?

8 A. Which water modeling for which
9 circumstance are we talking about?

10 Q. So the Appendix J that you relied on
11 in the charts in your Hill and Keller reports
12 from Morris Maslia's expert report, that water
13 modeling which tracks -- you know, was taken
14 from Chapter A of the exhibit that we covered in
15 Exhibit Number 15.

16 A. I got you.

17 So my understanding, the modeling, I
18 don't know just the modeling, and I think the
19 modeling is reasonable. To say whether or not
20 it's accurate is a subjective description.

21 But based on my understanding of the
22 science right now, the modeling suggests levels
23 of exposure that I'm confident can be a cause of
24 cancer, and based on my knowledge of specific
25 cases are certainly, I would conclude, more

1 likely than not or as likely as not for the
2 legal standard to be a cause of cancer in these
3 two individuals.

4 And even if there was some
5 variation, because modeling is modeling and
6 different models can slightly, or change values,
7 I can't imagine how based on my knowledge from
8 multiple sources that still wouldn't suggest
9 there was an amount of exposure that would lead
10 me to conclude that this -- both these
11 individuals, their exposure to these chemical
12 and combination of chemicals was a contributing
13 cause of their cancer.

14 Q. Okay. I want to turn to background
15 levels of certain VOCs like benzene or TCE.

16 Do you agree that people in general
17 are exposed to background levels of benzene and
18 TCE in everyday life?

19 A. Well, by definition as a scientist,
20 there's some background of exposure.
21 Importantly, often those backgrounds include
22 exposures that may not be completely natural.
23 It can include release of the chemicals, for
24 example, contaminated drinking water that
25 somebody just didn't know about. That could be

1 incorporated in the background.

2 But there's always -- by definition
3 as a scientist, there will always be a
4 background.

5 Q. Did you consider background levels
6 of exposure in your Hill or Keller reports?

7 A. Well, I believe I did, as any
8 scientist would in multiple ways.

9 First of all, the science that I am
10 referring to concludes that environmental
11 exposure in consideration of background or other
12 sources of exposure is a -- can be a
13 contributing cause.

14 By necessity the science is done in
15 a way so we're talking about cause in addition
16 to whatever contribution there is to background,
17 and therefore I'm not going to say that there's
18 something in the background that may not also be
19 a cause. That's possible. What I'm saying is
20 the exposure through the contaminated water at
21 Camp Lejeune was a cause.

22 Also importantly, for many of the
23 individuals that are exposed to multiple
24 chemicals that work by different mechanisms,
25 genotoxic mechanisms, mechanisms that interfere

1 with the immune system or cause bone marrow
2 toxicity, that are synergistic. There are many
3 ways in which carcinogens can cause cancer.

4 And I believe that that combination
5 and the amount, regardless of any contribution
6 to background, is all additional unnecessary
7 risk that in this case I believe was a cause.

8 Q. Would you agree that benzene is
9 ubiquitous in the environment?

10 A. Well, it depends on the contextual.
11 In part now it is because benzene and
12 trichloroethylene have contaminated the
13 environment.

14 Trichloroethylene when it's in water
15 essentially is a permanent chemical, and it's
16 been banned by the EPA because there's no way to
17 get rid of it almost when it's in water. When
18 it's in groundwater it lasts for decades.

19 Similarly, contamination with
20 benzene, when it does not get exposed to the
21 air, lasts for a long time. It can be present
22 for a long period of time.

23 Would there be some amount of these
24 chemicals caused from other so-called natural
25 sources? Certainly that's possible. I mean,

1 these chemicals can exist. But the amount that
2 these individuals got from drinking water was
3 not necessary and was not something they knew
4 about, and posed an unnecessary cause.

5 Q. You would agree we're exposed to
6 benzene when we're filling up our cars with gas,
7 right?

8 A. There's some amount of benzene in
9 gasoline, and so that is a potential exposure.
10 That doesn't change my opinion that drinking
11 water contaminated with benzene and
12 trichloroethylene and other organic chemicals
13 was a cause of cancer.

14 Q. And you agree that we're exposed to,
15 you know, benzene in certain foods, right?

16 A. There's some amount of benzene in
17 particular probably caused by contaminated water
18 from things like what happened in Camp Lejeune.
19 That doesn't change my opinion that the water
20 contaminated at Camp Lejeune would be a cause.

21 Q. But there is benzene in foods,
22 right?

23 A. There can be some amount of benzene
24 that could be measured in food. That doesn't
25 change my opinion that benzene and

1 trichloroethylene and vinyl chloride and
2 tetrachloroethylene in drinking water in Camp
3 Lejeune would be a cause of cancer.

4 Q. Are you aware that the ATSDR has a
5 toxicological profile for benzene that listed,
6 there's as much as 30 parts per billion of
7 benzene in avocados?

8 A. I don't know specifically about what
9 you're talking about in terms of avocados. I
10 haven't memorized the values for particular
11 circumstances, so I don't have an opinion.

12 Even if you do produce a document
13 showing that, that doesn't provide a reason why
14 dumping benzene, tetrachlorethylene,
15 trichloroethylene, in the drinking water of
16 people who lived unbeknownst to them drinking
17 the water, bathing in the water, living in a
18 place with contaminated water were exposed to
19 these chemicals that can be a cause of cancer.

20 Q. That same toxicological profile from
21 the ATSDR, they listed coleslaw with dressing as
22 having 102 parts per billion of benzene.

23 Are you aware of that?

24 MR. LEE: Objection. Form.

25 THE WITNESS: Again, you haven't

1 shown me the document, and so to me it's
2 just hearsay. You can show me the
3 document and we can look at it, but it's
4 not going to change the opinion that the
5 fact that avocados and coleslaw may have
6 benzene in them as being a reason why
7 there should be benzene in somebody's
8 drinking water when they're serving as a
9 soldier or working for the government at
10 Camp Lejeune.

11 BY MR. RYAN:

12 Q. Understood.

13 MR. RYAN: Are we on...

14 MR. LEE: 16, correct.

15 MR. RYAN: So this would be 16, not
16 17. Thanks for that.

17 (Whereupon, Exhibit Felsher 16 was
18 marked for identification.)

19 BY MR. RYAN:

20 Q. All right. I'm going to show you
21 what I'm marking as Government Exhibit 16. This
22 is ATSDR's 2007 toxicological profile.

23 So the foods I just mentioned are on
24 page 272 if you want to check that.

25 A. 272.

1 Okay. So looking at this, the other
2 problem is that the amount of measurements made
3 are ridiculously small to make that much of a
4 quantification. I think there's up to 14, and
5 in some cases the estimates are based on two
6 measurements, in some cases one measurement.

7 I see avocados is based on -- raw is
8 based on ten measurements. So this is not
9 particularly scientifically quantitated.

10 And when you look at the measured
11 values, you told me what they found, but it's
12 ranges from 3 to 30 parts per billion. So 30 is
13 the highest? How many did they see that, in one
14 value? Was that one using Camp Lejeune water?

15 I mean, you can't conclude -- you
16 can't conclude much from this other than that
17 there may be benzene in some foods and we don't
18 know why. But there's not enough information
19 here to conclude anything.

20 I don't see the coleslaw. I can't
21 find the coleslaw. It's not alphabetical. It
22 seems random how they listed it.

23 Q. It would be, it's halfway through --
24 down the page, "Coleslaw with dressing."

25 A. Okay, coleslaw. So ranges from 11

1 to 102. 14 measurements.

2 Q. Did you review this toxicological
3 profile, Exhibit 16, when you were preparing
4 your Hill and Keller reports?

5 A. I don't believe I did. And looking
6 at this table, I wouldn't see how it would
7 change my opinion that living on -- in a base,
8 working in a base that had drinking water
9 contaminated with multiple carcinogens that work
10 synergistically to cause cancer would be a
11 potential cause and in these two individuals a
12 cause of their cancer.

13 Q. So you didn't consider Mr. Hill or
14 Mr. Keller's background exposure to food when
15 preparing your reports or opinions in these
16 cases?

17 A. I wouldn't say that. I'm aware
18 there's a back -- could be a background.
19 Looking at this table, this information is not
20 useful to me.

21 To put into perspective, avocados
22 range from 3 to 30. That would be like telling
23 you I had a measurement that suggested that
24 either you're 3 feet tall or 30 feet tall, as an
25 estimate of how tall you are, to tell you what

1 your risk is. In a small number of
2 measurements -- so I don't see how this would
3 change. I recognize it will be a background.

4 I've told you I don't believe
5 there's necessarily one cause, there could be
6 other causes. That doesn't change my opinion
7 that the exposure to Camp Lejeune contaminated
8 drinking water that included not just benzene
9 but also trichloroethylene, perchloroethylene,
10 and vinyl chloride as being a -- as a potential
11 cause of cancer, and in these two individuals a
12 cause of their cancer.

13 Q. Okay. Turning back to your
14 differential etiologies in your amended Hill and
15 Keller reports, you'd agree that there are
16 certain demographics and many risk factors
17 associated with NHL and CLL?

18 MR. LEE: Objection to form.

19 THE WITNESS: I mean, stated that
20 way, it's so broad it's hard to agree or
21 disagree. I don't know what you really
22 mean.

23 BY MR. RYAN:

24 Q. I'm just pulling up your reports
25 here.

1 A. Sure.

2 Q. We're at that point where I'm buried
3 underneath documents.

4 So if you turn to Exhibit Number 3,
5 this is your amended Hill report, on page 9.

6 A. Yes.

7 Q. Towards the bottom it says, "In
8 general, there are certain demographics and many
9 risk factors generally associated with
10 lymphohematopoietic cancers and/or NHL," right?

11 A. Well, that's what I state, and I put
12 it in the context of a paper, and then I
13 describe what I mean by this by writing several
14 pages of describing the demographics.

15 Q. Would you agree that many cancers,
16 including NHL and CLL, have more than one
17 substantial risk factor?

18 A. Yes, there would be more than one
19 risk factor.

20 And I would point out that risk
21 factor is not the same thing as a cause. Some
22 risk factors are causes, some risk factors are
23 susceptibility factors or not independent
24 causes, but they can indirectly be a
25 contribution to another cause, to another risk

1 factor that actually is a cause, and I describe
2 that in detail here. I'm glad to explain this
3 to you.

4 Q. What makes your distinction between,
5 you know, risk factor and, you know, a cause?
6 What would make something causative of NHL or
7 CLL versus just a risk factor?

8 A. So a risk factor can be something
9 associated or create a circumstance that allows
10 a cause to happen.

11 For example, being a woman is a risk
12 factor for having breast cancer. Women don't
13 cause their breast cancer. Being a man is a
14 risk factor of prostate cancer. It's not a
15 man's fault. They don't cause their breast
16 cancer, but it's a susceptibility. It means you
17 can get prostate cancer, women can get breast
18 cancer.

19 More likely, age, age allows time to
20 happen which can allow a cancer to occur after
21 an exposure. So age is not independent of a
22 carcinogenic exposure because the older you are,
23 the more chance you have to be exposed for a
24 period of time and have there enough time for a
25 cancer to occur.

1 Family history. When investigated,
2 almost every case, if not every case of where
3 there's a family history of cancer is because
4 somebody has a susceptibility to cancer. Most
5 susceptibility syndromes have been shown when
6 investigated to increase the ability of
7 environmental carcinogens to cause cancer
8 because most susceptibilities in genes involve,
9 for example, genes that regulate DNA repair.

10 And so chemicals that cause DNA
11 damage when you expose somebody who has a
12 susceptibility because they're less capable of
13 repairing their DNA, they're going to be more
14 susceptible to carcinogens. In fact, that's why
15 there's so much heterogeneity in the ability of
16 carcinogens to cause cancer.

17 Autoimmune disorders aren't directly
18 causing, but they can cause a circumstance that
19 makes your lymphocytes behave more like race
20 cars, so that if you undergo a genetic event,
21 for example, through being exposed to a
22 genotoxic carcinogen or a carcinogen that blocks
23 the ability of the immune system to eliminate
24 cancer cells, then you're more likely to get
25 cancer.

1 Immune suppression, similarly.

2 Radiation and chemotherapy are
3 examples of a chemical or an exposure, and
4 radiation, really it's ionizing radiation where
5 they cause direct genetic damage, and they are
6 examples of causes.

7 Exposure to chemical carcinogens are
8 direct causes. They can cause damage to your
9 DNA. They can force proliferation. They can
10 block the immune system. They can antagonize
11 mechanisms that cause cellular senescence. They
12 can block apoptosis. They can antagonize the
13 ability of the immune system to find a cancer.
14 They can block and cause bone marrow toxicity.
15 They can stimulate lymphomagenesis and leukemia
16 genesis.

17 So those are just some of the
18 examples. I could talk to you for ten hours
19 about examples.

20 Q. I wish we had that amount of time,
21 unfortunately we don't.

22 A. No, for all of our sake, at another
23 time over a beer.

24 Q. Surely.

25 When you're performing your

1 differential etiology, are you able to quantify
2 the degree to which an individual risk factor
3 contributes to their cancer?

4 MR. LEE: Objection. Form.

5 THE WITNESS: Well, a cause -- the
6 cancer did happen, and so saying when
7 something did happen 20 percent,
8 30 percent, 50 percent of it happened,
9 it's kind of like saying if I knocked a
10 wall down in your house, to what
11 percentage did it knock down your house.
12 If somebody else knocked down another
13 wall, you'd say, well, you knocked down a
14 wall, it happened because you knocked down
15 a wall. Were there other causes? Yes,
16 there were other causes. Somebody was
17 knocking down another wall at the same
18 time.

19 I don't really think you can think
20 about it as the way you assign a relative
21 quantification. What I can say is, based
22 on my knowledge of the science, these
23 exposures can be a cause, and these
24 specific cases, more likely than not they
25 were a cause.

1 I'm not saying they were the only
2 cause. I'm saying what happened more
3 likely than not happened in a way that
4 was -- that was likely because of this
5 exposure.

6 BY MR. RYAN:

7 Q. So specific for Mr. Hill and your
8 opinion on that, your opinion is applying a
9 differential etiology, it's more likely than not
10 Mr. Hill's exposure to the VOCs at Camp Lejeune
11 caused his CLL, right?

12 A. I didn't -- no, with the
13 qualification I'm not saying it caused. I'm
14 saying it's a cause, because it's a big
15 difference saying whether or not I've done a
16 differential etiology and I found every possible
17 cause.

18 We've already talked for a good hour
19 about the fact that I accept the fact that there
20 may be other causes, and there may be causes I
21 don't know about.

22 The issue is whether or not I
23 believe the exposure to these chemicals in the
24 contaminated drinking water of Camp Lejeune were
25 a cause. They were one of the cases. They were

1 a cause I would list as a cause, and I've
2 concluded they are. I'm not going to speculate
3 there's possibility of other causes. It would
4 be a speculation. So I'm not going to say it
5 caused, I'm going to say it was a cause.

6 Q. Well, you also -- in your Hill
7 report you recognize that Mr. -- risk factors
8 and demographics, for example, Mr. Hill is a
9 male. Being male is in and of itself a risk
10 factor for CLL. You also recognize advanced age
11 is a risk factor for NHL and CLL. And that
12 Mr. Hill is obese, and that generally increases
13 his susceptibility to cancer. And he also has
14 an occupational history of exposure to jet fuel,
15 right? You recognize these factors?

16 A. I considered those factors, and I
17 believe age is a risk factor, but in his case
18 age was a risk factor that was not an
19 independent risk factor. It also meant that he
20 had the time for his exposure to cancer-causing
21 carcinogens to give rise to his cancer.

22 His -- he was overweight, and
23 obesity can interfere with processes of the
24 immune system and inflammation in a way that
25 make him more susceptible as a risk factor, but

1 I don't believe it was an independent cause. I
2 believe it made it more -- more susceptible, but
3 this is -- these susceptibilities of age,
4 gender, are exactly why I believe that
5 individuals who were in the services in Camp
6 Lejeune needed to be warned that if you're going
7 to drink the water here, you're going to be
8 exposed to a carcinogen.

9 They didn't have the chance to say,
10 you know, I'm going to -- I'm pretty sure I'm
11 going to be overweight in my life. I have other
12 risk factors. I shouldn't choose to do this
13 because I know I'll be exposed to dangerous
14 chemicals that cause cancer.

15 So none of these are factors in
16 themselves that can be a proximate cause. They
17 can influence the ability of other causes to be
18 a cause, like exposure to a genotoxic
19 carcinogen, exposure to trichloroethylene. They
20 can be genotoxic but also be immune suppressive.
21 Benzene also causes hematotoxicity, bone marrow
22 toxicity.

23 We haven't talked about it, but
24 disturbing the microenvironment in the bone
25 marrow and other lymphoid organs is a mechanism

1 of cancer. There's a delicate architecture, and
2 just like lawyers have a hierarchy and my lab
3 has a hierarchy and the military has a hierarchy
4 of leadership and checks and balances, if you
5 disrupt that you're more likely to have a
6 pathologic process and it can give rise to
7 cancer.

8 Q. Okay. In your differential etiology
9 for Mr. Hill, how did you consider the risk
10 factors and rule out each factor in determining
11 that the VOCs were causative of his CLL?

12 A. Well, I -- again, I'm going to tell
13 you, I didn't determine they were causative, I
14 determined that they were a cause, that they're
15 certainly -- I'm including them as one of the
16 causes. There may be other causes.

17 These other factors, it depended on
18 the circumstance. Age in itself is a risk
19 factor, and it's not independent of the exposure
20 to a carcinogen, I've already explained.

21 The same thing with obesity. Same
22 thing with -- the jet fuel, in that case I'd be
23 speculating. The exposure was brief, he used
24 protective equipment. As much as I can tell,
25 that did not appear to be something that I could

1 quantify as being a cause.

2 I considered the possibility, but
3 from what was described to me, it didn't appear
4 that -- in that case he did take precautions.
5 In that case the military did know he needs to
6 wear protective equipment. He needs to be
7 protected. He should not be exposed to the jet
8 fuel.

9 I don't have any evidence that when
10 he was drinking the drinking water or exposed to
11 the water at Camp Lejeune that there was any
12 protection.

13 Q. So you -- looking at your etiology,
14 so you ruled out age as a risk factor for CLL?

15 A. No, I considered it a risk factor
16 but I said it's not a cause. It was not an
17 independent risk factor. It's not independent
18 of the exposure to carcinogen.

19 Q. Forgive me, I misspoke there.

20 For age, you ruled out it as a cause
21 for Mr. Hill's CLL?

22 A. I would say that it is unlikely to
23 be a cause. As a scientist, I would be hesitant
24 to just use the word ruling out, ruling in. I
25 didn't tell you that I ruled in that ethylene --

1 ethylene. Now I'm talking about other
2 carcinogens -- that benzene or trichloroethylene
3 is a cause. What I said is it's more likely
4 than not it's a cause.

5 What I would say about age is it is
6 unlikely -- it's very likely that it is a
7 dependent risk factor that increases
8 susceptibility to the carcinogen exposure. It
9 is unlikely in itself to be a cause.

10 Obesity, likely to have increased
11 susceptibility, unlikely in itself a direct
12 independent cause. But I'm not going to -- I
13 try to consider what you would say ruling in,
14 ruling out, but generally as a scientist I try
15 not to treat this as a check-off list because
16 most of these considerations are somewhat
17 complicated.

18 Q. In your etiology, did you consider
19 obesity in combination with his age and his sex
20 being a male was a cause of his CLL?

21 A. Would I consider, no, because I
22 don't know how age and obesity and being male
23 interact other than -- we didn't talk about
24 male, but male susceptibility to -- relatively
25 to CLL is not an independent risk factor in this

1 case because, more likely than not, at the age
2 at which he was working at Camp Lejeune there
3 were probably more men than women who were
4 exposed.

5 So often gender is a bias based on
6 other sorts of causes, like workplace exposures
7 that favor a job that a male will have can
8 confound that it's not the gender that's
9 causing.

10 There are other cases where the
11 gender does have an influence. Sometimes
12 there's subtle reasons why being male or female
13 would make you more or less susceptible. In his
14 case I can't think of a reason.

15 And the relative gender difference
16 for non-Hodgkin's lymphoma is not very great,
17 usually. It's not that it's 10 to 1, 100 to 1,
18 that one gender or the other gets a particular.
19 It's usually much more subtle than that.

20 Q. In speaking about Mr. Hill's
21 occupational history in fueling aircraft, are
22 you aware of the general duties that Mr. Hill
23 carried out as a Naval boatswain's mate for
24 fuel?

25 A. Well, asked that way, I mean, you

1 can -- I know some of the description based on
2 review of records and testimony.

3 Q. Mr. Hill's deposition testimony?

4 A. Including that, yes.

5 Q. Is there any other materials you
6 considered when determining what his duties were
7 and what his exposure were to jet fuel?

8 A. Sitting here, I believe that was --
9 the main information I have are his deposition
10 testimony. I believe other experts also
11 considered this possibility, which I saw their
12 opinions. I didn't see that other than what
13 appeared to be just simply speculative
14 conjecture, that any of the defense experts gave
15 a reason why exposure to the jet fuel would be a
16 cause or a contributing cause of his lymphoma.

17 Q. In your differential etiology for
18 Mr. Hill, when you consider what type of
19 personal protective equipment he used, are you
20 aware of the specific type of equipment that a
21 Naval boatswain's mate for fuel would have done
22 in the mid '70s?

23 A. I don't have granular detail of what
24 particular equipment, other than the description
25 provided me that he took protection. I'd be

1 speculating on whether or not he did or did not
2 deviate from what was disclosed through his
3 testimony.

4 Q. Did you review any specific
5 literature on exposure to jet fuel in your
6 etiology?

7 A. I -- sitting here right now, I don't
8 recall whether or not there was a specific
9 literature. If there's a paper that you want me
10 to consider and see whether or not I considered
11 it, I can look at that and I'll tell you whether
12 I considered it.

13 Q. Sure.

14 I'm showing you what I've marked as
15 Felsher Exhibit 17. This is a document entitled
16 IARC Monograph, Volume 120 on Benzene.

17 (Whereupon, Exhibit Felsher 17 was
18 marked for identification.)

19 BY MR. RYAN:

20 Q. Take whatever time you need to
21 review that, and when you're ready, my first
22 question is, have you reviewed this before.

23 (Witness reviewing document.)

24 A. I believe at some point I may have
25 reviewed this. I don't recall if it was listed

1 on my documents considered.

2 Q. When you're ready, please turn to
3 page 68.

4 A. And just to be clear, of course,
5 this is not the whole document.

6 Q. No, it's not. I'm trying to -- I
7 have the full document if you would like. I'm
8 trying to save trees.

9 A. I understand.

10 Q. But if you'd like to see it, I
11 brought a whole copy.

12 A. If you ask me a question where I
13 need to see the whole document, I clearly have
14 not memorized the IARC monographs.

15 Q. No. Perfectly fine. Just let me
16 know.

17 On page 68, there's a section titled
18 "Use of petroleum-based products containing
19 benzene in small amounts."

20 Do you see that?

21 A. Yes.

22 Q. The first paragraph reads, "Benzene
23 is a residual component in petroleum-based
24 products such as mineral spirit, jet fuel," and
25 then it goes on for other solvents.

1 Do you see that?

2 A. Yes.

3 Q. And then on the next column, top
4 right corner of page 68, it goes on to say,
5 "There have been some reports on exposure to
6 benzene during handling of various types of jet
7 fuel; although exposure concentrations vary
8 between the studies, work tasks, and
9 circumstances, the reported values indicate a
10 potential for exceeding is from exposures of 1
11 part per million."

12 Do you see that?

13 A. I see that.

14 Q. It goes on to list some studies
15 including 1987 by Holm et al; Egeghy et al,
16 2003; and Smith et al, 2010.

17 Do you see that?

18 A. I see the studies.

19 Q. To the best of your knowledge
20 sitting here today, did you review these studies
21 when forming your etiology for Mr. Hill?

22 A. Well, to the best of my knowledge,
23 just based on the name and the year, I would say
24 I don't know. I would have to see the studies.

25 In just reading this paragraph in

1 this part of the monograph, I would say I'd be
2 speculating what he was exposed to by handling
3 jet fuel. I considered the possibility, knowing
4 that fuel can contain benzene, that there was
5 some exposure.

6 But it would be purely speculative
7 in terms of what he was exposed to if. And it
8 wouldn't change my opinion that his exposure to
9 benzene in his drinking water was a contributing
10 cause of his cancer.

11 Q. So if I told you that these studies
12 indicate that exposure to benzene could pose a
13 health hazard among personnel involved with the
14 handling and maintenance of jet fuel, that
15 wouldn't affect your etiology for Mr. Hill?

16 MR. LEE: Objection to form.

17 THE WITNESS: Well, I don't see
18 those, and I'd be -- I don't know whether
19 or not I've seen or not seen these
20 documents because I don't remember just
21 based on one author and a date.

22 But even in reading this paragraph,
23 it says, "Reported values indicate a
24 potential for exceeding exposures," which,
25 okay, so that they're speculating that

1 there's a potential. So where is the
2 measurement? Am I supposed to speculate?

3 I considered the possibility that
4 his work caused him to be exposed to
5 benzene. I'm not saying -- like you've
6 asked me, did I completely rule out. No,
7 I didn't. I considered it. I said it's
8 possible. That doesn't change my opinion
9 that his exposure to drinking water
10 contaminated with not just benzene but
11 other chemicals could be a contributing
12 cause of cancer.

13 BY MR. RYAN:

14 Q. Okay. And turning back to your
15 amended Hill report --

16 A. Yes.

17 Q. -- which is Exhibit 3.

18 A. Yes.

19 Q. On page 21.

20 A. Yes. Which one is the amended?

21 Here it is.

22 Q. It is Exhibit 3.

23 A. Okay, page 21. Yes.

24 Q. Last paragraph before it gets to
25 Radiological Procedures, it states, "Finally,

1 and of most significance, Mr. Keller was exposed
2 to benzene, TCE, VC and PCE at Camp Lejeune."

3 Do you see that?

4 A. Yes.

5 Q. It states Mr. Keller here, but I'm
6 assuming that you meant to say Mr. Hill?

7 A. Yes.

8 Q. Can you tell me why Mr. Keller's
9 name would appear in Mr. Hill's report?

10 A. No, any more than you referred to
11 Mr. Keller and Hill and got confused, probably
12 the same thing. I don't know how that
13 typographical error occurred right there.

14 Q. Understood.

15 So it's just a typo, right?

16 A. I believe so.

17 Q. Okay. When you were preparing
18 Mr. Hill's report, both the initial and the
19 amended, did you use a draft from another report
20 as a template?

21 A. I can't remember whose report I did
22 first. There's the chance that when I prepared
23 the reports I prepared one before the other, and
24 I certainly was trying to make documents that I
25 was -- that were aware of each other in terms of

1 the symmetry and conclusions expressed in a way
2 that were understandable in relationship to each
3 other.

4 And it's possible that that's how a
5 typographical error happened, that literally I
6 did take a sentence from somewhere in Keller's
7 report and put it here and had missed the fact
8 that as I was modifying the sentence to be in
9 respect to Mr. Hill, that I changed the cancer,
10 but I didn't change the name.

11 Q. Understood.

12 And in your Hill report, in your
13 differential etiology you didn't consider
14 idiopathy, right, as a cause?

15 MR. LEE: Objection to form.

16 THE WITNESS: What do you mean,
17 "idiopathy"?

18 BY MR. RYAN:

19 Q. Idiopathy, unknown.

20 A. Oh, idiopathic?

21 Q. Yes. Sorry.

22 A. Well, that's an internally
23 self-contradictory statement. It's like saying
24 did I consider -- when you considered what
25 causes contributed, did you consider the fact

1 that you had no idea what the cause was.

2 When you're doing a causality
3 consideration, implicitly you're considering the
4 possibility you won't find a cause, so in that
5 sense of course.

6 In another sense, I've already told
7 you I believe there could be multiple causes and
8 there could be causes that I don't know about,
9 because just as I didn't know about Camp Lejeune
10 until I knew about it, and Mr. Hill and
11 Mr. Keller didn't know about the risk at Camp
12 Lejeune.

13 So did I consider the possibility in
14 considering that I would not find something to
15 consider? Well, obviously. Either it's a silly
16 question or it's, like, a silly tongue-twister
17 concept.

18 How can you go in the process of
19 thinking the causality and say, did you rule out
20 the possibility in considering causality you
21 wouldn't find a cause? Well, of course I
22 considered the possibility. I don't find any
23 causes in one sense. I also believe there's
24 more than one cause.

25 So I would tell you by its very

1 nature there's likely to be components I don't
2 know, so why would I -- so I either -- in the
3 process during causality it's impossible to
4 determine it's idiopathic because I found a
5 cause, but I know that there could be other
6 causes I don't know about, so there's always the
7 possibility that there's a component that's
8 idiopathic.

9 Q. Okay. Turning to your Keller
10 report, Exhibit 4.

11 A. Yes. Yes.

12 Q. Your opinion for Mr. Keller in this
13 report is applying a differential etiology, it's
14 more likely than not that Mr. Keller's exposure
15 to VOCs at Camp Lejeune caused his NHL, is that
16 correct?

17 A. No. As I've repeatedly corrected
18 you, I'm saying it was a cause. There could be
19 other causes. There could be causes I don't
20 know about.

21 Q. Okay. And so you conducted your
22 etiology in Mr. Keller's case in a similar
23 manner as you did for Mr. Hill, right? You
24 considered the risk factors, all the materials,
25 your education, training, experience, the

1 literature, and that led you to determine your
2 opinion that the VOCs in Camp Lejeune were more
3 likely than not a cause of his NHL, right?

4 A. I think that in part characterizes
5 the methodology I used. Those include aspects
6 of what I did.

7 Q. Okay. And in your etiology for
8 Mr. Keller, did you consider and rule out
9 Mr. Keller's gender being male as a cause of his
10 NHL?

11 A. I did in the sense that I consider
12 gender as a risk, but it would be susceptibility
13 and would be confounded by the fact that in his
14 case he was more likely to be in the services
15 because he was a man, and that would also be
16 associated with him being exposed to these
17 carcinogens.

18 Q. Okay. And did you rule out
19 Mr. Keller's age as a cause for his NHL?

20 A. I didn't rule it out. I consider
21 age to be not an independent risk factor. Age
22 is also associated with having the time to be
23 exposed to a carcinogen and for sufficient time
24 to -- for that exposure to lead to cancer.

25 Q. So when you say something like age

1 is "not an independent," what do you mean by
2 that? Is it in and of itself it's not a cause
3 of NHL, or is it that in combination with other
4 risk factors?

5 A. Well, it's not either of those. It
6 includes elements of that. So I would say when
7 you talk about something not being independent,
8 you're getting at the notion that sometimes it
9 is because the risk itself is not actually
10 demonstrably the actual cause.

11 It would be like if a bomb went off
12 in this building because somebody hates the
13 wedding and we're all killed, we could conclude
14 that because I'm an expert and you're all
15 lawyers that that was the cause because we
16 happen to be more likely in a hotel. It would
17 be totally -- we'd be totally fooled. But it
18 turns out the bomb would have nothing to do, it
19 turned out somebody hates this family that's
20 noisily having their wedding.

21 But you could be fooled because
22 other reasons for being in this building at the
23 same time, like doing a deposition, could happen
24 for the same reason, for a concordant reason.
25 You're more likely to be in a hotel conference

1 room near a place where there's a wedding.

2 So sometimes there can be a risk,
3 but it's not actually the cause. We're not
4 doing anything that's affecting that wedding.
5 The wedding was going to happen in a hotel and
6 depositions often happen in hotels.

7 Being male can be indirectly a
8 cause. Males do jobs different from women,
9 especially 20, 30 years ago. The services,
10 there are more men than women.

11 The relative risk of lymphoma is
12 only modestly greater, but if it's because of
13 workplace exposures like exposure to carcinogens
14 that are more likely to happen if you've served
15 in jobs where you're exposed to chemicals like
16 benzene and trichloroethylene and
17 perchloroethylene and vinyl chloride, then it
18 would be a confounding variable.

19 Age is very complicated, and simple.
20 Longer periods of time allow for more exposure.
21 So if you know that a carcinogen can be a cause,
22 you have to take into account that it's not
23 independent.

24 Scientists always consider this. We
25 do what are called multivariate analysis where

1 we're trying to make an association. We try to
2 discern what's cause, what's association. All
3 the studies that I reviewed will make some
4 efforts to try to discriminate between cause and
5 association by looking at analyses and trying to
6 discern is there a reason why a variable is seen
7 but it's not a direct cause.

8 There are other examples. Like race
9 can be a strong confounder. Why? Well, because
10 certain ethnic backgrounds will be poorer
11 generally, and they're more likely to live in a
12 place where they're going to be exposed to
13 chemical carcinogens.

14 So if you look at cancers that are
15 associated with chemical carcinogens, generally
16 it appears to be more common with people who
17 have a lower socioeconomic status, and in many
18 cases that will be people who come from certain
19 disadvantage groups that often correlate,
20 unfortunately, with race.

21 Would I conclude that race is a
22 cause of cancer? No. I would conclude in that
23 case, oh, there is economic factors.

24 So when I'm considering, I consider
25 these variables and many other considerations

1 that I can't describe in terms of trying to
2 discern are these factors risks or causes.

3 Q. For Mr. Keller specifically, did you
4 rule out his obesity as a cause of his NHL?

5 A. I didn't rule in or rule out. But
6 obesity based on my understanding of the science
7 contributes to cancer by increasing
8 susceptibility, by influencing inflammation that
9 can increase the ability of genotoxic agents to
10 be genotoxic.

11 It can impair immune surveillance
12 that can increase the ability of chemical
13 carcinogenesis that cause genetic events to
14 result in cancer.

15 It can influence angiogenesis that
16 can allow the tumor to grow more rapidly.

17 It can influence other homeostatic
18 mechanisms such as cellular senescence programs,
19 metabolism.

20 It can influence all these
21 concordantly.

22 It can create a microenvironment
23 context that make it easier for a process to
24 result in carcinogenesis.

25 And we know that genetic events are

1 more likely to cause cancer experimentally if we
2 elicit an inflammatory state.

3 Dean Felsher published a Nature
4 paper showing if you cause changes in lipid
5 metabolism, and basically inflammatory state you
6 start seeing with obesity, you accelerate
7 hepatocellular carcinoma caused by the oncogene,
8 for example, MYC, which is one of the oncogenes
9 that usually will get activated in lymphomas.

10 So I know this based on my general
11 knowledge. I have contributed directly to this
12 knowledge. It's something I've studied. We
13 published papers on how antagonizing lipids and
14 lipid metabolism can be used as a treatment for
15 cancer.

16 We studied how metabolism and
17 inflammation and changes in weight can
18 accelerate cancer. We're studying cancer
19 prevention. We've studied how we can modulate
20 the microenvironment and factors that obesity
21 influences to block cancer.

22 We haven't published all of those
23 findings. They were part of a large consortium
24 grant where we were chosen as one of the couple
25 of labs in the country to work on this as a

1 question.

2 I mean, there's a lot known about
3 this and a lot of it, and I'm summarizing it in
4 just a few minutes of statements.

5 MR. LEE: When you get to a point,
6 we'll take the next break?

7 MR. RYAN: Yeah, sure.

8 THE VIDEOGRAPHER: Going to do that
9 now?

10 MR. LEE: Yes.

11 THE VIDEOGRAPHER: Going off the
12 record at 3:33 p.m.

13 (Whereupon, a recess was taken.)

14 THE VIDEOGRAPHER: We are back on
15 the record at 3:43 p.m.

16 BY MR. RYAN:

17 Q. Dr. Felsher, turning back to your
18 Keller report, Exhibit 4, on page 27.

19 A. Yes.

20 Q. The paragraph right above the
21 Damages heading, it states, "Finally, and of
22 most significance, Mr. Keller was exposed to
23 benzene at Camp Lejeune. Benzene exposure is a
24 known cause of hematopoietic cancers including
25 NHL, as described above. Mr. Keller's exposure

1 to benzene was medically more likely than not a
2 significant contributing cause of his NHL."

3 My question is, what constitutes a
4 significant contributing cause?

5 A. As I already described to you, based
6 on my review of the science generally, and
7 specifically considering his circumstances and
8 materials that I've already described multiple
9 times, I've concluded that his exposure to
10 benzene could be a cause and it was a
11 significant cause based on the materials that
12 we've already gone through and described, such
13 that if I were going to list a cause, I would
14 include it as a list.

15 It is something where I believe it
16 was a contribution that would be definable as a
17 cause if I were doing a differential etiology
18 like I am and I'm going to list it as one of the
19 causes.

20 Q. Okay. So in your etiology you're
21 determining that the exposure to benzene was a
22 cause, but you're also stating it's a
23 significant cause, so I'm just trying to figure
24 out what's the difference between what you're
25 defining as a significant cause and just a

1 cause.

2 A. Well, because generally his exposure
3 could be a cause, and then I had to evaluate,
4 well, when was he exposed? And he was exposed
5 for a significant period of time. I looked at
6 considerations of duration, quantity, a variety
7 of different considerations. I considered the
8 context of other risk factors.

9 And as a scientist-doctor who has
10 spent decades thinking about cause and
11 mechanisms of cancer, I would list this as
12 something I can say here I have a cause. As
13 opposed to, you've asked me about age, and I've
14 said, well, age is a risk factor, it's not a
15 cause, and I've explained why. We've talked
16 about how other considerations can be a risk but
17 not a cause.

18 We didn't talk in his case about
19 that he has a family history that includes
20 cancer but not any evidence of familial
21 susceptibility syndrome, and I would say, well,
22 I won't list that as a cause. I don't know that
23 he has a susceptibility syndrome, he doesn't
24 have a family history of non-Hodgkin's.

25 We didn't talk about, but would I

1 say that there could be a risk? Yes. Would I
2 list it as a cause? No. Why? Well, there's
3 not any specific evidence of a familial
4 susceptibility syndrome.

5 And if he did have, then I would
6 have said, well, would I list this? I'd say,
7 well, I'd list it as a risk factor. It's
8 something that's susceptible. I would put it
9 down as a list, this is a risk factor.

10 Instead, I concluded, well, there's
11 some evidence of history, but it's anecdotal,
12 there's not in evidence that it is actually a
13 cause or that it's -- I'm sorry, that it's
14 actually a susceptibility factor, that it's
15 contributing in a way that I would list he has a
16 familial susceptibility.

17 Q. Dr. Felsher, according to the ATSDR
18 data that you relied on and cited in Appendix J,
19 Mr. Keller was exposed to at most 4 micrograms
20 per liter of benzene over a period of less than
21 two years. You would agree that this is below
22 the EPA's MCL for benzene being 5 parts per
23 billion?

24 A. Well, I wouldn't agree or disagree.
25 We talked about the MCL. When was that updated?

1 Did that take into account evidence that I
2 considered as a scientist? No. I don't see
3 that they -- did they in 2025 update it to
4 consider Yu and Wang's papers showing that at
5 .2 parts per billion there's an associated
6 measurable increased risk of cancer, or the Wang
7 paper that found exposure even at the lowest
8 environmental exposures increased the risk of
9 cancer in that study that was in fractions of a
10 microgram over the minimum exposures? They
11 didn't consider any of that literature.

12 Those MCL values are rarely updated.
13 Now they'll never be updated because I think
14 half the EPA doesn't work there anymore.
15 There's no IRIS. IRIS is, I guess, being
16 disbanded. And that's not their fault. I mean,
17 if there's nobody there to update, there's
18 nobody there to do the work, then it's not
19 possible.

20 So I discount that as being
21 completely irrelevant. I can tell you the
22 science. And I'll tell you the ATSDR will say
23 -- you find an ATSDR, look at the introduction,
24 the preamble, and they'll say, our risk
25 estimates can be used to give an idea at a

1 population level, but for individuals you need
2 to have other information. Like a health
3 assessor is usually the way it's described,
4 meaning presumably a physician-scientist like
5 me.

6 Q. In your etiology in your Keller
7 report similar to what we discussed with
8 Mr. Hill, you didn't consider idiopathy,
9 correct, as a cause?

10 A. Not true. As you've asked me
11 multiple times, I explained to you, something
12 idiopathic, it's both an illogical question and
13 it's discounting my -- mischaracterizing my
14 testimony.

15 First of all, if I'm going to do a
16 differential etiology and I find a cause, to say
17 I didn't consider the possibility I wouldn't
18 find a cause is comically absurd.

19 Second, I told you there are
20 multiple causes, and I've already multiple times
21 told you that there could be some I don't know
22 about, including idiopathic contributions.

23 I think the key aspect here is --
24 and maybe the implicit confusion on the defense
25 part is there is an argument that to some extent

1 cancer happens, bad luck, spontaneous.

2 And what I haven't spit out for you
3 maybe to make it so you're not confused is there
4 is an element of chance in what happens. Not
5 everybody exposed to carcinogen will get cancer.
6 But that chance changes when you are exposed to
7 genotoxic agents and agents that suppress your
8 immune system. Multiple carcinogens work
9 through different mechanisms.

10 While we're replicating, crap
11 happens. Usually it's fixed. But if you throw
12 a wrench in the ability to repair because you're
13 constantly being exposed -- and you might think
14 this parts per billion, whatever, is a small
15 amount. It turns out to be trillions of
16 molecules. It sounds like a small amount, but
17 the issue is, if you're constantly being
18 exposed, it makes it more likely that you won't
19 be able to fix.

20 And particularly if that happens --
21 and you're also being exposed to agents that
22 suppress your ability to eliminate early cancer
23 cells, for example, because of blocking immune
24 surveillance mechanisms, something -- I've spent
25 my career demonstrating the role of T-cells and

1 B-cells and NK cells and innate immunity and how
2 this interplays with oncogenesis and how this
3 interplays with microenvironment considerations,
4 how you can perturb it either in a negative way
5 to block cancer or a positive way to contribute
6 to causing cancer.

7 But there's always idiopathy, as
8 you're using the word, there's always elements
9 that we don't know. The issue here is what we
10 do know, is benzene is genotoxic, it's bone
11 marrow toxic, it's immune toxic.

12 Trichloroethylene, it's genotoxic,
13 it can cause defects in immune system, it can
14 stimulate autoimmunity.

15 These are all mechanisms that I know
16 based on my own science, based on the science of
17 my friends, based on the science published,
18 based on science generally accepted as
19 mechanisms that cause cancer.

20 And dancing around this idiopathy,
21 spontaneous, it's just chance misunderstands a
22 fundamental axiom here, benzene,
23 trichloroethylene, PCE, vinyl chloride work
24 through mechanisms that would exactly cause a
25 problem in these, making it much more difficult

1 for everyday replication of your cells to happen
2 in a way that you don't make mistakes, where you
3 screw up your chromosomes, your DNA, cause
4 mutations, cause genetic events that activate
5 oncogenes and activate tumor suppressor genes,
6 and it takes multiple events to cause cancer.

7 So that's sort of the longer answer
8 to address this. I think that explains exactly
9 why I've considered in aspects implicitly
10 idiopathic, I've considered implicitly that we
11 don't know all the causes, I've considered
12 implicitly I have a deep understanding of the
13 spontaneous random aspect of this, and I'm very
14 aware and I'll be able to explain in transparent
15 detail whether or not this goes before a judge
16 or eventually goes before a jury. Even more fun
17 if it's in front of a jury because I am
18 fantastic at explaining it in a way that a jury
19 will understand. I've done it many times. If
20 it's a judge, fantastic, I'll explain it in a
21 more detailed way.

22 Q. Okay. You state in your Keller
23 report that his NHL hasn't relapsed in the past
24 24 years, correct?

25 A. I can't remember the exact

1 quantification, but there is some number of
2 years. If that's what it says in my report and
3 you point to it, I'll agree.

4 Q. Okay. Well, let's see. On page 25
5 you'll see --

6 A. Prognosis. It's probably here.

7 Q. Prognosis. Yep. Second sentence,
8 Mr. Keller's history of NHL, was treated with
9 chemotherapy and SCT and now has CKD and
10 cardiomyopathy. He is now in remission from
11 NHL. Is that right?

12 A. Currently he's in remission. He has
13 long-term medical problems that were directly
14 his cancer and treatment contributed,
15 cardiomyopathy and chronic kidney disease, both
16 unfortunately significant, dangerous, and
17 life-shortening processes.

18 Q. At this point would you consider
19 Mr. Keller's NHL as cured?

20 A. Well, yes and no. Yes, he's been in
21 remission for a long period of time. No, I
22 believe his exposure to carcinogens was a cause.
23 And I would explain to you that the way this
24 happens mechanistically, likely he will have
25 many cells in his body still mutated, there will

1 be cells that increase his risk of having a
2 secondary cancer, just like you already know
3 because you asked me, isn't one of the risk
4 factors for non-Hodgkin's lymphoma having had
5 non-Hodgkin's lymphoma.

6 One of the reasons there's a risk is
7 precisely because if the cause was genotoxic
8 events occurring in your cells, there will still
9 be cells -- other lymphocyte cells in his body
10 that may be partly mutated, and also anybody who
11 has had the treatment he's had does not have as
12 intact of an immune system, and so he's more
13 likely to have a reoccurrence or a new secondary
14 cancer.

15 Also, I believe he's exposed to
16 benzene, and benzene causes a myriad of other
17 types of cancers, or can be a cause. I would
18 need to be consistent with myself. It could be
19 a contributing cause.

20 So he's at risk of other
21 malignancies because he had a malignancy,
22 because he was exposed, because he's relatively
23 immunocompromised that were a consequence of his
24 disease, a consequence of his treatment, a
25 consequence of his exposure.

1 Q. What would it take for you to
2 consider Mr. Keller's NHL as cured? Or in other
3 ways, is there a point moving forward where you
4 would consider his NHL as cured?

5 A. Well, in terms of his primary
6 cancer, the type of cancer he had, we'll usually
7 say with an aggressive lymphoma, if you're five
8 years out and your cancer hasn't recurred,
9 you're more likely than not cured.

10 But the distinction here is I'm
11 saying something else. I'm saying he may be
12 cured of this cancer. That doesn't mean he's
13 not at risk of another non-Hodgkin's lymphoma or
14 another cancer because of his exposure and
15 because of his history of cancer.

16 And could he have a recurrence more
17 than five years out? Absolutely. Have I seen
18 that in my career? Yes. I've seen people with
19 lymphoma who thought they were cured and many
20 years later. I know a patient who had five
21 reoccurrences of their lymphoma -- sorry, four
22 reoccurrences and then another cancer.

23 Q. To ask maybe more pointed, would you
24 consider Mr. Keller's DLBCL as cured?

25 A. I would consider that more likely

1 than not he is cured. I would not say
2 100 percent. I would say he still has a risk of
3 reoccurrence. Is it small? Yes, it's
4 relatively smaller.

5 Most recurrences of immunoblastic
6 lymphoma would occur in the first two or three
7 years. Can it occur later? Yes. Is he at risk
8 for a secondary cancer? Yes. Is that a
9 consequence of his exposure and of his disease
10 and of his treatment? Yes, all those
11 independently would be risks.

12 Could he get a completely different
13 cancer related to his exposure? Yes. In
14 somebody who has lymphoma and has had a stem
15 cell treated, are they at risk of secondary
16 malignancies? Yes. Does it have to be a
17 lymphoma? No. It could be a different kind of
18 cancer. Have I seen that? Yes. Do I see it
19 often? Enough that having been a professor 26
20 years I'm very aware of the secondary cancers,
21 in the literature that there are secondary
22 cancers.

23 Q. So in Mr. Keller's case you also
24 offer opinions about his kidney disease and his
25 cardiomyopathy, right?

1 A. I provide some opinions regarding
2 those diseases.

3 Q. So for his kidney disease, your
4 opinion, at least in your report, is the
5 development of Mr. Keller's kidney disease is
6 more likely than not caused by his treatment for
7 NHL, is that right?

8 A. I would say that it was a cause. If
9 I said caused, it was entirely caused -- I can
10 qualify it here and say, just as I would not say
11 cancer has one cause, I'm not saying that this
12 was the only cause, but it was certainly more
13 likely not a substantial cause.

14 And it's certainly something that's
15 seen in patients who are treated for
16 non-Hodgkin's lymphoma and get stem cell
17 transplant, that they will have kidney disease
18 and that they'll have cardiomyopathy.

19 I realize most of what I said to you
20 I do say in here.

21 Q. So is that something you're changing
22 or you want to supplement about the report or
23 what?

24 A. No, because I think it's clear that
25 I believe this really was a significant

1 contribution to the cause. I don't have
2 evidence that there's another cause.

3 And I can tell you for a fact that
4 there are examples of kidney disease and
5 cardiomyopathy happening, right, as an
6 association with the treatment for lymphoma,
7 whereas oncologists, we'd say, well, yeah, we
8 caused that damage to the heart, we caused that
9 damage to the kidneys.

10 If you're dying of cancer -- the one
11 time we disregard cardiology is if you're dying
12 of cancer, and he would have died of cancer if
13 he was not treated. We were willing to take the
14 risk of damaging somebody's heart or kidneys.
15 We try not to do that, but you're aware of the
16 fact that that is a consequence.

17 You also damage people's brains. I
18 didn't mention this, but that will add, is that
19 people getting this kind of treatment usually
20 will in short term complain of changes in their
21 ability to think, and often they'll have some
22 changes. In some cases it can be discernible
23 through evaluation.

24 I didn't have any evidence from his
25 records that happened, but I can tell you that

1 it often happens.

2 Q. Okay. And you're also offering an
3 opinion that the worsening of Mr. Keller's
4 cardiomyopathy is more likely than not caused by
5 his NHL treatment, right?

6 A. Based on the association and how he
7 was treated, very likely.

8 Q. How did you conclude that his kidney
9 disease was more likely than not caused by his
10 treatment for NHL? In other words, what did you
11 consider?

12 A. Well, I considered the fact that the
13 kidney disease worsened proximate to his
14 treatment. The type of treatment he got can be
15 a cause of kidney disease, and chronic kidney
16 disease, there can be other causes, but there
17 weren't any discernible causes.

18 But it's common that people have
19 long-term chronic changes in their kidney
20 function after they receive high-dose
21 chemotherapy associated with a stem cell
22 transplant. Unfortunately, it is toxic and
23 causes profound and often permanent changes in
24 people.

25 Q. Okay. Similarly for cardiomyopathy,

1 what did you consider in your opinion that it's
2 more likely than not caused by his NHL
3 treatment?

4 A. Well, there are other causes of
5 cardiomyopathy that I don't see that were
6 discernible, that were acutely changing
7 temporally with his stem cell transplant and the
8 therapy that he received.

9 And so I can't imagine, as an
10 oncologist, where I've often seen that after
11 such therapies associated with changes in heart
12 function and permanent changes, the type of
13 therapy we give directly damages the heart,
14 particularly when you give high doses of therapy
15 associated with a stem cell transplant, or even
16 the induction therapy associated with a stem
17 cell transplant is highly toxic.

18 Q. Dr. Felsner, would you agree that in
19 the United States, at least, the most common
20 cause of death for people with diabetes is heart
21 disease?

22 A. Most common? Well, if you put all
23 together it might be, although diabetics, the
24 heart disease they get is typically -- they get
25 accelerated myocardial infarction, not

1 cardiomyopathy associated with being treated
2 with chemotherapy.

3 Q. Okay. Would you also agree that in
4 the United States the most common cause of renal
5 failure or end-stage kidney disease is diabetes?

6 A. Maybe, but the -- it might be
7 something that is common, although in this case
8 he had diabetes and he did not have the same
9 loss of kidney function, and then he had a stem
10 cell transplant and it aggravated.

11 I think, though, that the fact that
12 he had diabetes complicated his treatment for
13 his cancer, and it's possible to consider that
14 he had non-recognized kidney disease and
15 cardiomyopathy -- he didn't have cardiomyopathy,
16 but he had some heart dysfunction that was not
17 discernible, and certainly having diabetes was
18 not an advantage for him.

19 But temporally, he had a stem cell
20 transplant treated for cancer, and both of these
21 disease processes were much worse. They
22 contributed in a significant way. It's hard to
23 imagine otherwise.

24 Q. In your etiology for analyzing the
25 chronic kidney disease and the cardiomyopathy,

1 you didn't consider Mr. Keller's obesity or
2 diabetes as causative for either of those, did
3 you?

4 A. Well, I just explained to you
5 exactly how I considered diabetes and said that
6 if he already had had heart disease and kidney
7 disease that were attributable to his diabetes
8 and that's what he had, but after his stem cell
9 treatment and high-dose chemotherapy associated
10 with his treatment, that's when both of these
11 processes were aggravated.

12 Obesity in itself is not a proximate
13 cause of heart disease. In fact, now in 2025 we
14 would say that metabolic syndrome rather than
15 obesity itself, being fat in itself, many people
16 can have a normal weight and have diabetes.

17 In fact, we're listening to probably
18 an Indian wedding, and interestingly, for some
19 reasons, Indian and Indian Americans have
20 diabetes often associated without obesity.

21 I know this from brilliant Indian
22 physician colleagues who were part of my
23 translational research applied medicine program
24 that we've mentored multiple research programs
25 on how diabetes and metabolic syndrome

1 influences disease processes. So there are
2 clearly other factors and metabolic disturbances
3 independent of whether or not you're overweight
4 or not that influence these biologic processes.
5 Regardless, it may or may not have contributed.

6 What's clear in this case is he was
7 treated, had a stem cell transplant, and both of
8 these processes became worse. There's a strong
9 temporal association. I can't imagine that it
10 was not a proximate cause. Could there have
11 been other causes? Sure. Maybe he was more
12 susceptible because he had diabetes, maybe
13 metabolic disturbances related to being
14 overweight, but his stem cell transplant and
15 high-dose chemotherapy appear to have been a
16 substantial cause.

17 Q. Okay. I want to turn to the
18 Prognosis section in your Hill report. That's
19 Exhibit 3.

20 A. Sure. Which page number?

21 Q. It's going to be page 20.

22 A. Okay. I don't see it yet. Okay, I
23 see it, yes.

24 Q. Okay. In this section on page 20 of
25 Exhibit 3, it states, "Mr. Hill suffers from a

1 number of chronic conditions including:
2 Steatosis" and chronic kidney disease, among
3 others.

4 Do you see that?

5 A. Yes.

6 Q. Okay. Are you offering the opinion
7 that Mr. Hill's steatosis was caused by exposure
8 to the water at Camp Lejeune?

9 A. Not sitting here today.

10 Q. Okay. Are you offering an opinion
11 that Mr. Hill's chronic kidney disease was
12 caused by his exposure to the water at Camp
13 Lejeune?

14 A. Not sitting here today.

15 Q. Okay. Further down on page 20 you
16 state, "Mr. Hill will require long-term
17 treatment and management."

18 My question is, what kind of
19 treatment and management do you believe he will
20 require?

21 A. Well, we know as of April his CT
22 scan showed progression of his disease. He has
23 pancytopenia and he has had chronic infections.
24 They are considering giving him additional
25 therapy.

1 All of these suggest his disease is
2 progressing. He's going to require either
3 treatment for his cancer or treatment for the
4 associated complications of his cancer,
5 including infections that he's had and continues
6 to have.

7 He's going to progressively decline
8 and require long-term care. Most individuals
9 with this disease will eventually succumb
10 related to either the pancytopenia or infection
11 that are direct consequences of the CLL.

12 Q. Understood.

13 I understand that you made some
14 recommendations to, I believe it's Michael Fryar
15 who is a damages expert for Mr. Hill.

16 Do you recall giving those
17 recommendations?

18 A. I remember at some point talking to
19 Mr. Fryer a long time ago.

20 MR. RYAN: I'm marking as
21 Exhibit 18, this is a report by Michael
22 Fryar dated February 6, 2025.

23 (Whereupon, Exhibit Felsher 18 was
24 marked for identification.)

25 ///

1 BY MR. RYAN:

2 Q. If you go to the tabbed section,
3 it's not numbered because it's at the end of the
4 report, it's a cost analysis table for Bruce
5 Hill.

6 A. Yes. And I realize he doesn't know
7 how to spell my name or that I have a Ph.D.
8 That's okay. You know how to spell my name.

9 Q. It was him, it wasn't me.

10 A. I'm not blaming you, Mr. Ryan.

11 Q. Okay. So on page 2 of that cost
12 analysis, you see it says "Support Services."

13 A. Okay. Page 2. Where does the
14 support services appear?

15 Q. It's up top, on the top of the
16 chart.

17 A. The attendant care services, is that
18 what you --

19 Q. No, it's the previous page, page 2.

20 A. Oh, it is listed as page 2. Yes, I
21 see it.

22 Q. Okay. It listed service --
23 "Housekeeping Services," and it's under the tab
24 "Recommended by," it lists your name incorrectly
25 but I'm assuming it's you, as recommending

1 housekeeping services. And the purpose is
2 listed as "Provide support for Mr. Hill's
3 completion of necessary residential cleaning
4 requirements secondary to his diagnosis and
5 history of CLL."

6 Do you see that?

7 A. Yes.

8 Q. My question to you is, did you
9 recommend this to Mr. Fryar for Mr. -- as part
10 of services that Mr. Hill needs?

11 A. So I didn't review the analysis that
12 I'd done with Mr. Fryar before today, so I'm
13 recalling based on conversations we had months
14 ago.

15 And what I recall is that I had
16 described to him what usually it would look like
17 as somebody is progressing with their disease
18 and having issues in terms of increasing
19 inability for one to take care of themself.

20 And I believe that I describe the
21 progressive decline that would be associated,
22 and that Mr. Fryar inferred from that that there
23 would be certain other kinds of services
24 because -- that would be required based on how I
25 describe what would happen to an individual with

1 CLL as they're progressing with the disease and
2 they become more debilitated and less capable of
3 caring for their everyday needs.

4 Q. Are you aware of the medical records
5 that Mr. Hill remains listed as ECOG Status 1?
6 That's the Eastern Cooperative Oncology Group
7 scale.

8 A. I haven't seen anything most
9 recently about his ECOG status.

10 Q. If you're listed as ECOG-1, what
11 does that generally mean?

12 A. ECOG-1 means that you're still able
13 to care for yourself, at least whenever last --
14 they spelled my name correctly above, so it's
15 just whoever made the table. So it is me.

16 Q. Okay.

17 A. It would suggest the oncologist's --
18 at least in their evaluation if the person is
19 still able to care for themselves.

20 Q. Okay.

21 A. There would be some decline, it's
22 not perfect, but it would be -- and I would give
23 the caveat that I describe what I believe would
24 happen, but the timing and temporality of it is
25 hard to predict.

1 And right now the description of him
2 is he's doing much worse clinically as of the
3 last couple of months, to my understanding,
4 compared to what he was doing a year ago.

5 And usually, this is my observation,
6 I would have told Mr. Fryar this, there will be
7 an acute decline at some point, and predicting
8 exactly when that would occur can be challenging
9 to determine exactly. It's not that I could
10 provide a map of exactly, but it is going to
11 happen, and his disease is progressing now.

12 His CAT scan showed a significant
13 progression of all of his disease. He's got a
14 low white count, platelets, and hemoglobin.
15 Those are bad prognostically in somebody with
16 CLL showing pancytopenia.

17 Q. On the following page, page 3.

18 A. Yes.

19 Q. It states that you recommend
20 Mr. Hill for having, attendant care services and
21 specifically home health aide or a certified
22 nursing assistant. And the purpose is listed as
23 providing attendant care support services within
24 the residence to assist with the completion of
25 activities of daily life secondary to his CLL.

1 My question is, is this something
2 you recommended to Mr. Fryar for services that
3 Mr. Hill requires?

4 A. I believe that like I usually would
5 do in my capacity as a clinician, I described
6 what -- the progression of the disease and how
7 this would lead to decreased function, and that
8 Mr. Fryar in his ability and expertise suggested
9 based on his expertise how that associated
10 decline would require additional services.

11 Q. And it lists these services as three
12 to four days per week, four to six hours during
13 each visit.

14 In your opinion as a medical doctor,
15 do you think that is reasonable and necessary?

16 A. Well, as a medical doctor I would
17 usually, as every other time as an attending, I
18 defer to the opinion of an individual who is
19 provided such services and has experience based
20 on what I describe is going to be the clinical
21 trajectory.

22 I know the clinical trajectory can
23 be linear, linear decline. It could be acute.
24 At the time that this was prepared, I gave the
25 best estimate of clinically what would happen.

1 I think this description for an
2 individual based on what I know now about him is
3 he's going to require significant help, more
4 likely than not soon because his cancer appears
5 to be no longer, at least as most recently
6 measured, no longer responding. He's having
7 progressive disease, and he's starting to have
8 evidence of pancytopenias, which is a bad
9 prognostic indicator in a patient with CLL.

10 Q. Moving on to page 4.

11 A. Yes.

12 Q. It states the service as Facility
13 Care, and the purpose is listed as "Facility
14 support services for Mr. Hill during the final 2
15 years of his life secondary to...CLL," listed as
16 being recommended by you.

17 My question is, is this something
18 that you recommended to Mr. Fryar that Mr. Hill
19 requires?

20 A. Well, in this case I would say I
21 would have the most proximate understanding as
22 an oncologist. Usually we rely on other experts
23 to provide the intermediate kind of care
24 assessments, but in a patient when they are no
25 longer responsive with cancer, and they're at a

1 point where the priority would become comfort,
2 and that the idea would be that we're going to
3 accommodate them, in my experience it is the
4 case they generally require facility services
5 for their care.

6 Q. Okay. And in your experience as a
7 medical doctor, do you believe that this service
8 of the final tiers of his life, do you believe
9 it's reasonable and necessary?

10 A. To the best of my understanding, all
11 the services recommended were reasonable and
12 necessary, and appear to be consistent with what
13 I've seen decided for many of my patients in the
14 past and similar kinds of patients with
15 oncologic-hematologic malignancies, it was
16 required as part of their care, particularly as
17 their disease becomes refractorated treatment
18 and progresses.

19 Q. Okay. And then on page 25.

20 A. Is that in the same document? Do
21 the numbers change?

22 Q. No. It's the last tab in it, I'm
23 sorry.

24 A. Okay.

25 Q. It's page 2, and this is --

1 A. I see it.

2 Q. -- a Vocational Rehabilitation
3 Questionnaire. It says it's authored by you.
4 It's dated February 2nd, 2025.

5 My question to you is, is this
6 something that you filled out and signed?

7 A. I believe it's something I filled
8 out and signed. I didn't see a physical copy,
9 but I see my electronic signature, so I believe
10 this is something I filled out and signed.

11 Q. Okay. On page 2 of that, item
12 number 3, you write in here that, "Mr. Hill has
13 incurable progressive cancer and is not capable
14 of performing in a job."

15 Do you see that?

16 A. Yes.

17 Q. Okay. My question is, at what point
18 in Mr. Hill's history of his CLL was he -- did
19 he become incapable of performing in a job?

20 A. Well, the best as I can tell, around
21 the time that I was asked to give an opinion and
22 he was already showing progressive disease
23 associated with re-occurrent infections, it
24 appeared that he was having more challenge being
25 able to perform in a job.

1 Q. Okay. Do you understand that
2 Mr. Hill retired in 2012, right?

3 A. I couldn't remember the exact date
4 he retired. I knew he retired previously.

5 Q. Okay. Are you aware that he worked
6 after that point for many years as a pastor in
7 his church?

8 A. Yes, I saw that was described, that
9 he had been a pastor in his church in his
10 records.

11 Q. So do you have an opinion on whether
12 after he retired in 2012 he could have continued
13 in a full or part-time job in an environment
14 that's consistent with his CLL diagnosis?

15 A. I'm confused. Are you asking me if
16 he could function as a pastor?

17 Q. No, no, no. What I'm asking is,
18 after he retired in 2012, do you have an opinion
19 as to whether he could have gotten any
20 alternative employment, full or part-time?

21 A. Well, it seems more likely than not
22 he would have had challenges in a full-time job.
23 It's hard to say that I could say he couldn't
24 perform in any kind of part-time job. I mean,
25 with that granularity, and I believe it's -- as

1 his incurable progressive cancer has progressed,
2 then it's not surprising that he has found it
3 increasingly challenging to perform in a job.

4 Q. So if you have -- strike that.

5 If Mr. Hill was able to work for
6 years as a pastor after he retired in an
7 environment, presumably a church, that he would
8 have had exposure to people in confined spaces,
9 would that lend itself to reasonable thinking
10 that he could have gotten a job in a similar
11 circumstance in a part or full-time manner?

12 MR. LEE: Objection. Form.

13 THE WITNESS: No, because I can't --
14 I can't opine on that. Are there
15 individuals who function as a pastor, the
16 once-a-week function is to give a sermon,
17 delighted that that's something he found
18 value in. I admire it.

19 To say that I can have knowledge
20 that that meant that he could do a job
21 where he was constantly around people,
22 working continuously, I wouldn't infer one
23 way or the other.

24 My experience as an oncologist,
25 after having taken care of many people

1 with CLL, is that it is a bad disease and
2 people are very sick, and the doctors tend
3 to -- cheerfully we tend to overestimate
4 and patients sent, when they come see us,
5 overestimate what they can do.

6 I remember fondly a Vietnamese
7 grandma, I remember Vietnamese because she
8 told me, I'm Vietnamese and I want to be
9 alive for my granddaughter. And she was
10 like 5 feet tall. She seemed plenty tall
11 to me because I already told you my wife's
12 around the same height. She would always
13 say, Stop calling me tall, I'm short.

14 Every time she saw me, despite the
15 fact that she had been dying of lymphoma
16 for two years, she dressed beautifully,
17 wore makeup, until the last day I saw her,
18 and then she suddenly died. And orchids
19 came to my house and they flowered for
20 years, and I would every time they
21 flowered again tell her daughter.

22 And they loved it because it was
23 special. It was the continuity. I went
24 to her funeral and they kept in touch with
25 me for many years.

1 I knew she was dying. I didn't
2 document, She's dying, she looks worse
3 than last time I saw. I would document,
4 Lovely grandma. She appreciates that she
5 was able to watch her granddaughter be
6 born."

7 This gentleman, from all the
8 description, has bad CLL. He's suffering.
9 It's awful. If he gets a little joy out
10 of being a pastor, fantastic. Would I
11 discourage him? No. I would be telling
12 him, go in a wheelchair if you need to to
13 do something.

14 But to say that's the same thing as
15 being able to work in a job around people
16 continually that requires concentration,
17 physical ability, stamina, when I know
18 he's been compromised and been fighting
19 this disease for years, just in my
20 experience all the description is, this is
21 a person who has been severely compromised
22 by his disease, and it's easy to
23 understate it, and he'll probably
24 understate it himself, and I would
25 encourage him to. I'd always encourage

1 the patients to fight if they wanted to
2 fight because that's what you do as a
3 doctor. You help people. Helping people
4 is not telling them what they can't do.

5 But I think he's severely
6 compromised. This is awful. And that's
7 what I would tell a judge and that's what
8 I'll tell a jury.

9 BY MR. RYAN:

10 Q. Okay. Turning to the Prognosis
11 for -- section in Mr. Keller's report --

12 A. Of course.

13 Q. -- which is Exhibit 4 --

14 A. Yes.

15 Q. -- at page 25.

16 A. Of course. One second.

17 I am there.

18 Q. Okay. You state, "Mr. Keller has an
19 increased risk of future hematopoietic cancers,
20 other non-hematopoietic cancers, late recurrence
21 of cancer, and other benzene associated
22 cancers."

23 My question to you is, what are
24 benzene associated cancers?

25 A. Well, leukemia, lymphoma, many solid

1 tumors, including lung cancer, colon cancer, and
2 other cancers have now been associated based on
3 epidemiology particularly over the last couple
4 of years.

5 Q. And what type of chronic conditions?
6 The next sentence, "He is also at risk of
7 post-treatment chronic conditions." What type
8 of conditions are you referring?

9 A. So that refers to the fact that he
10 has kidney disease and heart disease, that
11 patients who have had a stem cell transplant and
12 high-dose chemotherapy do not have a normal
13 immune system. He's more at risk of infection.
14 He'd be more risk, for example, generally of
15 COVID.

16 One of the things we discovered
17 during the COVID epidemic is that patients with
18 lymphoma particularly are at high risk with
19 COVID.

20 So I would say, you know, he'll
21 always have more of a risk of getting a worse
22 infection than -- there would be a multitude of
23 other things. Often part of the high-dose
24 chemotherapy and stem cell transplant, he'll go
25 on high-dose steroids. Steroids accelerate

1 diabetes, heart disease, they can cause
2 cataracts, other problems. I didn't see a
3 description of those, but I would tell you, oh,
4 all of these things can be associated with
5 people who received the high-dose chemotherapy.
6 Very common.

7 Unfortunately, they'll have -- it
8 may be subclinical now, but he's more likely to
9 have this as a problem, many, many other
10 problems. It is not something you casually
11 decide to do to get somebody just to do it, a
12 stem cell transplant and high-dose chemotherapy.

13 Q. Okay. And you continue on, "He will
14 need continued long-term follow-up and
15 management for the future increased risk of
16 cancer."

17 My question is, what type of
18 treatment and follow-up will he require?

19 A. Well, not all that I can anticipate.
20 Obviously if he has a secondary cancer related
21 to his exposure and his treatment, then he'll
22 need specific.

23 Given the fact that he has kidney
24 disease and cardiomyopathy, he'll need
25 management. He can go into end-stage renal

1 disease, and there's a chance he'll need a
2 nephrologist and dialysis. His cardiomyopathy
3 could progress to causing more severe
4 dysfunction and require a cardiologist. The
5 other medical complications I talked about
6 require a variety of medical interventions and
7 treatment.

8 Generally he would be followed after
9 having received a stem cell transplant and
10 chemotherapy certainly by a generalist who is
11 used to taking care of patients post-intensive
12 chemotherapy, and usually we'll follow these
13 patients as oncologists for many years after
14 they've been treated. Probably initially be
15 followed by a bone marrow transplant doctor, and
16 then usually subsequently by an oncologist.

17 Q. Do you have any opinions on what
18 Mr. Keller's life expectancy is?

19 A. Well, overall his life expectancy
20 has been shortened. That I can quantify how
21 much would be, I think, challenging to give a
22 number, other than to say that patients with
23 non-Hodgkin's lymphoma who have been treated
24 with intensive chemotherapy and now have heart
25 disease and kidney disease are unlikely to live

1 a full lifespan, and it's likely that their life
2 has been on average shortened by years, whether
3 it will be shortened by five years or ten years
4 or two years.

5 Most studies that have looked at
6 survivors of cancer generally show that there's
7 an average shortened lifespan even in patients
8 that are cured, usually in years, but there will
9 be a large range of how the effect could be.

10 Q. Okay. And just circling back for
11 Mr. Hill, do you have any opinions on what his
12 life expectancy will be?

13 A. Mr. Hill seems more likely than not
14 will not live more than in the neighborhood --
15 if his disease is progressing right now, he may
16 not live more than a year or a few years. It's
17 possible he'll pass away this year.

18 Hard to estimate exactly. It will
19 depend on if he responds to X manager salvage
20 therapy. He's already been treated with
21 multiple rounds of salvage therapy. But if he
22 doesn't respond at all, he could regress.

23 If he'd get an infection, he could
24 pass away any time in the next weeks or months.
25 If he responds again, he can go into remission,

1 and it would be hard to predict.

2 But he's going to succumb to this
3 disease eventually, unfortunately. He does not
4 have a curable disease.

5 Q. Okay. And something that you
6 included in both your reports for Hill and
7 Keller, you mentioned you considered the
8 Bradford Hill considerations, is that right?

9 A. Somewhere I mention Bradford Hill.

10 Q. Yeah. It's page 5 of both reports.

11 A. But to clarify, Bradford Hill --
12 wonderful scientist, Sir Bradford Hill, and his
13 considerations are helpful for considering
14 general causality, and they provide some
15 perspective on how to interpret epidemiology,
16 but I didn't mean to imply I did Bradford Hill
17 considerations for specific causality per se.

18 Q. Okay. So this wouldn't be --
19 Bradford Hill considerations wasn't really
20 considered in your methodology for your specific
21 causation reports for Mr. Hill and Mr. Keller?

22 A. Well, only in the sense that I
23 clearly have provided a general causality, and
24 general causality suggests why I believe these
25 volatile organic compounds/chemicals are causes

1 of cancer, how they can be a contributing cause,
2 and those considerations allow me to think about
3 issues of causality more generally.

4 Specifically I would say they're not
5 really part of -- you don't do a causality
6 differential etiology for an individual patient
7 thinking about Bradford Hill directly, but it
8 helps -- they provide some framework as part of
9 my methodology for interpreting the general
10 studies. So there's some value. But I didn't
11 mean to imply I did Bradford Hill sort of
12 considerations for each patient.

13 Q. Okay. I just want to talk about
14 some -- an invoice we received in response to
15 our document request for this deposition. I'm
16 going to show you what's marked as Felsher
17 Exhibit 19.

18 (Whereupon, Exhibit Felsher 19 was
19 marked for identification.)

20 BY MR. RYAN:

21 Q. And this is an invoice for Camp
22 Lejeune dated May 24, 2025.

23 Take all the time you need to review
24 it, and my first question is, do you recognize
25 this?

1 A. I believe I recognize it.

2 Q. Okay. Is my understanding correct
3 that this is an invoice you submitted for your
4 services between April and May for this case?

5 A. I believe so.

6 Q. Okay. About halfway down it says --
7 under the title Meetings, it says you had one
8 hour of meetings.

9 Do you recall when these meetings
10 occurred?

11 A. Right now, no. It may have been --
12 it could have been -- oh, in the context, this
13 would mean more likely than not when we had --
14 when I had a Zoom conference to discuss having
15 the deposition, the first deposition.

16 MR. LEE: I just want to make sure
17 I'm clear. You haven't asked any unfair
18 questions yet, but I want to make sure.

19 He's not entitled to anything we
20 talked about or the specific purposes of
21 those meetings. Otherwise, please
22 respond.

23 MR. RYAN: No. Very good point,
24 Randy.

25 ///

1 BY MR. RYAN:

2 Q. At no point am I asking you to say
3 what you discussed, only just when.

4 A. Understood.

5 That meeting was probably talking
6 with the attorneys.

7 Q. Okay. And when you say "the first
8 deposition," are you referring to the general
9 causation deposition that you did sometime in
10 April?

11 A. I'm being confused because this is
12 May, so this must be talking about issues
13 related to today.

14 MR. LEE: Okay. Fair enough.

15 BY MR. RYAN:

16 Q. Now, so it's dated April to
17 May 2025, so that would have been a month where
18 you had the deposition.

19 A. Honestly, Ryan, I can't remember.

20 Q. That's fine.

21 A. I can't remember. At the time I
22 prepared, I can see that I list the actual time
23 I spent in preparation for deposition. That
24 would have been the time I'm talking about
25 related to discussions with the lawyers at the

1 time of the deposition.

2 That meeting -- so the meeting
3 probably was a meeting to discuss with the
4 lawyers related to before the deposition.

5 Q. Okay. And talking about preparation
6 for deposition, yeah, you provide specific six
7 hours for meeting with lawyers.

8 Without any reference to what you
9 discussed, can you tell me how many meetings
10 that you had in this six-hour period?

11 A. Two.

12 Q. And what depositions were they?
13 Were they in the general causation deposition
14 you had in April, or was it this specific
15 causation deposition we're having today?

16 A. I believe this is for the general.
17 I haven't -- I don't believe I've invoiced
18 anything related to today. I would wait until
19 after the deposition because in my experience
20 we're all busy and sometimes it doesn't happen,
21 so I would wait until after the deposition to
22 bill you for a deposition.

23 Q. The review of depositions, the
24 four-hour period, would that be deposition
25 transcripts?

1 A. Yes.

2 Q. Do you recall which depositions
3 specifically? I know you talked about one
4 before in one of your supplements. I forget who
5 that was.

6 A. Well, I'm not billing for work
7 today. This would have been what I reviewed
8 before my general -- my general deposition.

9 Q. Okay.

10 A. So whatever I told your colleague --
11 they probably asked me what depositions I
12 reviewed. I would disclose it. Sitting here
13 right now I don't remember.

14 Q. Okay.

15 A. Because what I remember is what I
16 did for today.

17 Q. Okay. And then the total for April
18 and May 2025 was 62 hours at a thousand dollars
19 an hour, which is \$62,000, is that correct?

20 A. I believe so.

21 Q. Okay. Have you issued an invoice to
22 the attorneys -- the plaintiffs' attorneys here
23 for any period after May 2025?

24 A. I've issued an invoice for the
25 Department of Justice, which Lori Merz explained

1 to me that because you're the government,
2 there's some complicated form that needs to be
3 filled out.

4 Q. Yeah. I'm sorry about that. That's
5 not my choice.

6 A. No, and I wouldn't say anything, and
7 it's the same thing for any work I've done for
8 the government.

9 Q. Okay. And so other than the invoice
10 submitted to the DOJ, have you generated any
11 invoices submitted to plaintiffs' lawyers after
12 May 2025?

13 A. If I have, I've forgotten. I don't
14 believe so.

15 Q. Okay. If there is any other invoice
16 submitted after this period up until currently,
17 I'd ask that that be produced.

18 Okay. And just one last exhibit --
19 what are we on now, 20 -- I'm marking as Felsher
20 Exhibit 20. This is a retention letter produced
21 in response to our document request for today's
22 deposition.

23 Take all the time you need, and my
24 first question when you're ready is, do you
25 recognize this?

1 (Whereupon, Exhibit Felsher 20 was
2 marked for identification.)

3 A. I don't remember the document, so I
4 can't honestly tell you I recognize it. It
5 probably is something that I saw, but I don't
6 see a date on it so I don't know when I would
7 have remembered seeing it.

8 BY MR. RYAN:

9 Q. Okay. It states your consultation
10 fee structure is a thousand dollars per hour.
11 Is that your correct charge you're currently...

12 A. It has been what I've charged,
13 though honestly all new cases I've just as of
14 today -- as of the last couple of months I've
15 been telling lawyers I'm just going to bill
16 everything \$2,000 an hour, because most of what
17 I've been doing has been in trial or deposition.

18 But that doesn't affect. This is
19 reasonable. I don't know how 12,000 per day was
20 decided. Usually I've charged \$2,000 an hour.
21 It may be that this was signed so long ago that
22 it was 1,500 an hour, but I don't know how it
23 gets to 12,000. I don't even remember.

24 Q. Okay. So would you say your current
25 fee structure would be 2,000 per hour?

1 A. Yes. So today you were given, my
2 understanding, seven hours of actual time. I'm
3 only to bill the Department of Justice the
4 actual time we've talked to each other, which is
5 fine, and so I would -- you should expect a bill
6 when I figure out how to fill out the form of
7 \$14,000, roughly the same.

8 Q. Okay. And the 12,000 per day of
9 trial testimony, is that something you currently
10 still charge, or is it just 2,000?

11 A. I've been charging \$2,000 an hour,
12 and usually I've charged the entire time I've
13 been here. But it's been explained to me that's
14 not what the Department of Justice does, and I'm
15 glad to do what it is that you do.

16 Q. Okay. And so what you're charging
17 the plaintiffs' attorneys, would that be \$2,000
18 per hour for the full time?

19 A. If we go to trial and they're paying
20 for me to be in trial, I'll charge \$2,000 per
21 hour.

22 Q. Understood.

23 MR. RYAN: Okay. That about wraps
24 it up. If you guys don't mind to take
25 like a quick break, review, and see if

1 there's anything else I want to discuss,
2 and then we can conclude.

3 MR. LEE: Five minutes?

4 MR. RYAN: That works for me.

5 THE VIDEOGRAPHER: Going off the
6 record at 4:41 p.m.

7 (Whereupon, a recess was taken.)

8 THE VIDEOGRAPHER: We are back on
9 the record at 4:48 p.m.

10 BY MR. RYAN:

11 Q. Dr. Felsher, I just have two
12 follow-ups.

13 Turning back to Mr. Keller's report,
14 we talked previously about your opinions on his
15 chronic kidney disease and cardiomyopathy.

16 Do you recall that?

17 A. Yes.

18 Q. Have you reviewed the expert reports
19 by the government's expert, Dr. Ambinder and
20 Dr. D'Alessio?

21 A. If I've listed that they were
22 reviewed, I reviewed them. I believe I reviewed
23 Ambinder. I probably did. If they're listed, I
24 reviewed them at some point.

25 Q. Understood.

1 Are you aware that Dr. Ambinder
2 opines it's enormously unlikely that diabetes
3 rather than chemotherapy was the major cause of
4 Mr. Keller's heart disease?

5 MR. LEE: Objection to the form.

6 THE WITNESS: Well, actually what
7 you just said is it's very unlikely that
8 diabetes rather than chemotherapy.

9 BY MR. RYAN:

10 Q. Likely. Yeah. Thank you.

11 A. So I would say yes, but I think
12 that's probably not what you meant to say.

13 Q. No. Thank you for that. That would
14 have been a find it on the transcript now.

15 A. Yeah.

16 Q. Likely that diabetes rather than
17 chemotherapy was a major cause of his heart
18 disease?

19 A. Well, now you changed it to heart
20 disease. So do you want an answer about
21 diabetes or -- oh, okay. Say the question
22 again.

23 Q. I'll read it again just to be clear.

24 A. Okay. Read it again so that we're
25 both on the same page.

1 Q. Sure.

2 Dr. Ambinder finds it's enormously
3 likely that diabetes rather than chemotherapy
4 was a major cause of Mr. Keller's heart disease.

5 My question to you is, do you
6 disagree with that opinion?

7 A. Well, yes and no. I think that
8 characterization I would say generally I
9 disagree with. I don't disagree that diabetes
10 could contribute to heart disease.

11 But to say that somebody who had
12 high-dose chemotherapy and stem cell transplant
13 and then had significant compromise of heart
14 function, to argue that diabetes was the cause
15 and that the treatment was not, I think is
16 wrong. I think it's very common for patients
17 who receive intensive chemotherapy that's
18 associated with a stem cell transplant to have
19 permanent loss of heart function.

20 Is it worse and could it be that
21 diabetes may increase susceptibility? Yeah.
22 But the aggravation didn't happen because the
23 diabetes suddenly got worse. Although, honestly
24 you could even say, and I don't remember whether
25 or not Dr. Ambinder considered this, is most

1 patients who have diabetes when they are treated
2 with stem cell transplant high-dose
3 chemotherapy, often their diabetes can be
4 short-term aggravated, because often part of our
5 treatment is high-dose steroids that usually
6 causes decompensation of people's diabetes.

7 So I would say I disagree, but I
8 don't completely disagree. I appreciate the
9 opinion that diabetes is a factor. As I
10 clarified for you, I didn't say diabetes is a
11 non-factor and had no influence. I said that
12 his treatment was a factor and very likely, and
13 I can't imagine how that treatment was not a
14 significant factor because of the temporal
15 association and because of the fact that the
16 treatment is often a cause.

17 I did not read Ambinder or
18 D'Alessio's reports prior to this deposition.
19 At some point I've looked at them. So I don't
20 recall the specific comments, but based on my
21 assessment I would say if you're characterizing
22 the statement correctly, then I would disagree.
23 Albeit, I've already qualified for you, I'm not
24 saying that diabetes was not any factor --

25 Q. Understood.

1 A. -- or no contribution.

2 Q. Understood.

3 The steroid Mr. Keller received was
4 dexamethazone, is that right?

5 A. I believe so.

6 Q. Okay. And wouldn't you agree that
7 the glucose levels generally return to normal
8 after stopping treatment?

9 A. Yes, but usually you receive
10 multiple rounds of treatment, and you'll have
11 periods of decompensation, and so certainly
12 anything that you're talking about in terms of
13 diabetes would be aggravated.

14 And it's not that the treatment
15 happens over just a day. You're not giving
16 somebody -- you give people steroids at multiple
17 times. He would have had induction therapy
18 where he had a couple rounds of really high-dose
19 therapy associated with very toxic therapy, and
20 then his stem cells would have been harvested.
21 This would have all taken place over a period of
22 weeks.

23 Q. Okay. My understanding is that
24 Mr. Keller received dexamethazone for four days
25 over two weeks during four cycles of

1 chemotherapy before his transplant. And my
2 question is, for dexamethazone the glucose
3 levels would generally return to normal within
4 days or weeks after that last chemotherapy
5 treatment, is that right?

6 A. Yeah, but you get high-dose steroids
7 and you're aggravating the metabolic processes
8 associated with diabetes. He also would have
9 only gotten chemotherapy for a short period of
10 time, but the cardiac effects are usually seen
11 subsequently.

12 And some of the mechanisms have been
13 understood. There are effects that seem to be
14 somewhat dose-dependent. We try to keep people
15 below certain doses of exposure to certain
16 chemotherapeutic agents. And usually you'll do
17 serial evaluations of the heart demonstrating --
18 in order to make sure that you're not causing an
19 acute decompensation associated with
20 cardiomyopathy.

21 The point is that diabetes could
22 have contributed, but the fact that he had an
23 exaggeration of the effect of his cardiomyopathy
24 associated with his treatment make it very
25 likely that it was a proximate cause, a

1 significant cause, a contributing cause.

2 Q. Okay. And Dr. Ambinder, he also
3 opines that Mr. Keller's renal failure, his
4 kidney disease, was also a consequence of his
5 heart disease and diabetes.

6 Do you disagree with that?

7 A. Well, similarly I would say, as I
8 already described to you, that there are likely
9 multiple causes. His diabetes may have made him
10 more susceptible to the toxic effects of his
11 chemotherapy, but the chronic kidney disease
12 clearly appears to have been exaggerated, made
13 worse after he received chemotherapy.

14 If he didn't have chemotherapy and
15 he didn't have the high-dose therapy, could he
16 eventually have had diabetes-associated
17 complications? Certainly. But I'm arguing that
18 it was a proximate cause that could have been
19 prevented if he had not gotten cancer.

20 So that aspect of causing more
21 severe disease was associated with his therapy
22 that he only had because he had cancer, and he
23 had cancer where his exposure to Camp Lejeune
24 associated toxic carcinogens were a contributing
25 cause.

1 Q. Okay. And Dr. Ambinder also states
2 that the lymphoma chemotherapy that Mr. Keller
3 received is generally not damaging to the
4 kidneys. Is that something you disagree with?

5 A. Well, I would say, what does that
6 mean? And again we're talking about a document
7 that I'm not seeing and you're quoting
8 indirectly, and I don't -- didn't review it. I
9 wasn't expecting to be asked questions about it
10 right now, so I don't have it memorized. So
11 I'll say that I don't know how to characterize
12 what Dr. Ambinder said.

13 Regardless, I would say usually or
14 not, he had the treatment and it was associated
15 with a change in his kidney function. And when
16 we're thinking about cause and effect, one of
17 the most important ways to consider this is the
18 temporality if you get a treatment.

19 And it's not just the chemotherapy
20 that could cause kidney problems, it's the
21 stress on the individual associated with stem
22 cell transplant and treatment, the associated --
23 there can be other associated things that occur,
24 changes in blood pressure associated with acute
25 changes in vascular status, the use of other

1 kinds of medications that are associated with
2 the transplant that can sometimes interfere with
3 kidney function, and then simply the process of
4 going through getting high-dose therapy.

5 Q. Okay. And have you reviewed
6 Dr. D'Alessio's report? He's an
7 endocrinologist.

8 A. If it was provided to me and I
9 listed it in my documents considered, I will
10 have. Sitting here today, I haven't memorized
11 the document.

12 Q. Okay. Dr. D'Alessio opines
13 Mr. Keller had multiple other risk factors that
14 better established a cause for his chronic
15 kidney disease. Those include -- I'm going to
16 butcher this -- hypercalcemia, use of NSAIDs,
17 dyslipidemia, and atherosclerosis, and obesity
18 and diabetes. My question is, do you disagree
19 with this?

20 MR. LEE: Objection to form.
21 You can answer.

22 THE WITNESS: Well, I'm taking a
23 quote of a quote from you not having
24 memorized the document, so I won't
25 directly respond to D'Alessio's because I

1 don't have it before me and I don't have
2 it memorized.

3 It's the same with Ambinder. I'm
4 not going to say I'm directly responding
5 because I haven't memorized these
6 documents.

7 BY MR. RYAN:

8 Q. Okay. I can ask just a better
9 question, then.

10 Did you -- in your etiology, your
11 differential etiology when you were considering
12 Mr. Keller's chronic kidney disease, did you
13 consider other risk factors including those I
14 just mentioned, hypercalcemia, NSAIDs,
15 dyslipidemia, atherosclerosis, obesity, and
16 diabetes?

17 MR. LEE: Objection to form.

18 THE WITNESS: Well, in general I'd
19 say I considered other factors, and what I
20 respond now would be those factors were
21 continual, his treatment was not, and his
22 disease progressed after he got treatment,
23 and so more likely than not a major
24 determinant of the aggravation of his
25 disease was his treatment.

1 Could those other factors
2 contribute? Sure, they could be a
3 contribution. Could they have increased
4 the sensitivity to the treatment causing
5 kidney disease? Sure, it's possible.

6 I don't know of an acute
7 arthrosclerotic event, hypercalcemia, all
8 the different -- dyslipidemia. Those are
9 all chronic features, they were
10 chronically part of his state, and in the
11 trajectory of his disease process those
12 were around -- were changed as he was
13 treated.

14 And a priori would not expect an
15 endocrinologist to know one way or another
16 whether or not a treatment -- and
17 Dr. Ambinder's entitled to an opinion as a
18 cancer expert. I just -- if that was the
19 opinion that Dr. Ambinder gave, I
20 respectfully disagree that the temporality
21 suggests in this case that there was a
22 significant contribution to the
23 deleterious consequences to his heart and
24 to his kidneys from his treatment.

25 MR. RYAN: Okay. Dr. Felsher,

1 you've been generous with your time, as
2 with your counsel. So that's all I have
3 for now.

4 So I wish everyone a good day.

5 Are you guys going to do a redirect?

6 MR. LEE: We're done.

7 THE VIDEOGRAPHER: Keep your mics on
8 for just one more moment.

9 We have reached the end of today's
10 testimony and are going off the record on
11 July 10, 2025, and the time is 5:01 p.m.
12 Thank you.

13 (Whereupon, the deposition was
14 concluded.)

CERTIFICATE OF COURT REPORTER

I, MAUREEN O'CONNOR POLLARD,
Registered Diplomate Reporter, CSR No. 14449 for
the State of California, the officer before whom
the foregoing deposition was taken, do hereby
certify that the foregoing transcript is a true
and correct record of the testimony given; that
said testimony was taken by me stenographically
and thereafter reduced to typewriting under my
direction; and that I am neither counsel for,
related to, nor employed by any of the parties
to this case and have no interest, financial or
otherwise, in its outcome.

Dated this 19th day of July,
2025.

Maureen O. Pollard

MAUREEN O'CONNOR POLLARD

CSR No. 14449

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Please read your deposition over carefully and make any necessary corrections. You should state the reason in the appropriate space on the errata sheet for any corrections that are made.

After doing so, please sign the errata sheet and date it. It will be attached to your deposition.

It is imperative that you return the original errata sheet to the deposing attorney within thirty (30) days of receipt of the deposition transcript by you. If you fail to do so, the deposition transcript may be deemed to be accurate and may be used in court.

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DATE

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_____ day of _____, 20____.

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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.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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