

Exhibit 172

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

IN RE:
CAMP LEJEUNE WATER LITIGATION

This Document Relates to:
ALL CASES

EXPERT VIDEO-RECORDED DEPOSITION OF
JULIE E. GOODMAN, PHD

Tuesday, April 29, 2025
9:06 AM Eastern Time

Reported by: Denise Dobner Vickery, CRR, RMR
JOB NO.: 7305923

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

Tuesday, April 29, 2025
9:06 AM Eastern Time

Video-Recorded Expert Deposition of
JULIE E. GOODMAN, PHD, held at the offices of:

U.S. DEPARTMENT OF JUSTICE
1100 L Street NW
Washington, DC 20005

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

1 APPEARANCES:

2 Representing the Plaintiffs Leadership Group:

3 MANDELL BOISCLAIR & MANDELL LTD.

4 BY: ZACHARY M. MANDELL, ESQ.

5 BY: MICHAEL McCAFFREY, ESQ.

6 BY: SHANNON GRIFFIN, ESQ.

7 BY: MARK MANDELL, ESQ. (VIA ZOOM)

8 One Park Row

9 Providence, RI 02903

10 401.273.8330

11 zmandell@mbmjustice.com

12 mmccaffrey@mbmjustice.com

13 sgriffin@mbmjustice.com

14 mmandell@mbmjustice.com

15
16 Representing the Plaintiffs Leadership Group:

17 KELLER POSTMAN LLC

18 BY: J.J. SNIDOW, ESQ.

19 BY: ZINA BASH, ESQ. (VIA ZOOM)

20 1101 Connecticut Avenue NW, Suite 1100

21 Washington, DC 20036

22 202.742.5404

23 jj.snidow@kellerpostman.com

24 zina.bash@kellerpostman.com

1 APPEARANCES: (Continued)

2
3 Representing the Plaintiffs Leadership Group:

4 BELL LEGAL GROUP

5 BY: PAT TELAN, ESQ. (VIA ZOOM)

6 BY: RANDOLPH LEE, ESQ. (VIA ZOOM)

7 BY: LESLIE LAMACCHIA, ESQ. (VIA ZOOM)

8 219 Ridge Street

9 Georgetown, SC 29440

10 843.278.5852

11 ptelan@belllegalgroup.com

12 rlee@belllegalgroup.com

13 llamacchia@belllegalgroup.com

14
15 Representing the Plaintiffs Leadership Group:

16 MILBERG COLEMAN BRYSON PHILLIPS GROSSMAN

17 BY: DAVID MICELI, ESQ. (VIA ZOOM)

18 5 West Hargett Street, Suite 812

19 Raleigh, NC 27601

20 404.915.8886

21 dmiceli@milberg.com

22
23
24

1 APPEARANCES: (Continued)

2
3 Representing the United States of America:

4 U.S. DEPARTMENT OF JUSTICE

5 ENVIRONMENTAL TORTS

6 BY: LaCRESHA A. JOHNSON, ESQ., MPH

7 BY: ELIZABETH PLATT, ESQ.

8 BY: ANNA ELLISON, ESQ. (VIA ZOOM)

9 BY: KAILEY SILVERSTEIN, ESQ. (VIA ZOOM)

10 BY: SHARON SPRAYREGEN, ESQ. (VIA ZOOM)

11 1100 L Street NW, #4062

12 Washington, DC 20005

13 202.616.4447

14 LaCresha.A.Johnson@usdoj.gov

15 Elizabeth.k.platt@usdoj.gov

16 Anna.e.ellison@usdoj.gov

17 Kailey.silverstein@usdoj.gov

18 Sharon.sprayregen@usdoj.gov

19
20 VIDEOGRAPHER: GORDON THOMAS

21
22 ALSO PRESENT BY VIDEOCONFERENCE:

23 Patrick Wallace, Ted Ruzicka, Jim Roberts

24

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

INDEX

EXAMINATION OF JULIE E. GOODMAN, PHD	PAGE
BY MR. MANDELL	13
AFTERNOON SESSION	221

GOODMAN DEPOSITION EXHIBITS

(Attached to transcript.)

NUMBER		PAGE
EXHIBIT 1	Bladder Cancer Risk Expert Report of Julie E. Goodman, Ph.D., DABT, FACE, ATS, February 7, 2025	12
EXHIBIT 2	Kidney Cancer Expert Report of Julie E. Goodman, Ph.D., DABT, FACE, ATS, February 7, 2025	12
EXHIBIT 3	Parkinson's Disease Expert Report of Julie E. Goodman, Ph.D., DABT, FACE, ATS, February 7, 2025	12
EXHIBIT 4	NHL Risk Expert Report of Julie E. Goodman, Ph.D., DABT, FACE, ATS, February 7, 2025	12
EXHIBIT 5	Leukemia Risk Exhibit Report of Julie E. Goodman, Ph.D., DABT, FACE, ATS, February 7, 2025	12

1	EXHIBIT 6	Gradient Invoices	12
2		GOODMAN_USA_INVOICE_0000000001 - 403	
3	EXHIBIT 7	Plaintiffs' Notice and Request	12
4		For Production of Documents	
5	EXHIBIT 8	Comments of EDF on Candidates	17
6		Under Consideration for Selection	
7		as ad hoc Reviewers Assisting the	
8		SACC Review of the EPA draft TSCA	
9		Systematic Review Protocol	
10		Submitted January 28, 2022	
11	EXHIBIT 9	"Meet the 'rented white coats'	45
12		who defend toxic chemicals" - Heath	
13	EXHIBIT 10	INEP Position Statement Series	87
14		Conflict-of-Interest and Disclosure	
15		In Epidemiology 24 December 2020	
16	EXHIBIT 11	INEP's Position Statement on	98
17		Conflict-of-Interest and Disclosure	
18		in Epidemiology - Soskolne and	
19		Caldwell, February 25, 2021	
20	EXHIBIT 12	Julie Goodman - Advocate for	101
21		Industry, Track Record of Claiming	
22		that Toxic Chemicals are Safe	
23			
24			

1	EXHIBIT 13	"In the Fight Over Gas Stoves,	103
2		Meet the Industry's Go-To Scientist -	
3		Tabuchi, Updated January 30, 2023	
4	EXHIBIT 14	Transcript of Julie Goodman	178
5		September 11, 2024	
6		Sutton v. W.L. Gore	
7	EXHIBIT 15	Attachment L, Curriculum Vitae	199
8	EXHIBIT 16	"Cancer Incidence among Marines	233
9		and Navy Personnel and Civilian	
10		Workers Exposed to Industrial	
11		Solvents in Drinking Water at US	
12		Marine Corps Base Camp Lejeune:	
13		A Cohort Study - Bove, et al.	
14		132(10) October 2024	
15	EXHIBIT 17	"Mortality study of civilian	245
16		employees exposed to contaminated	
17		drinking water at USMC Base Camp	
18		Lejeune: a retrospective cohort study	
19		- Bove, et al., 2014	
20	EXHIBIT 18	"Responding to Reviewers and	271
21		Editors About Statistical	
22		Significance Testing - Savitz, et al.	
23		20 February 2024	
24			

1	EXHIBIT 19	EPA Risk Evaluation for	278
2		Trichloroethylene November 2020	
3		Page 252 of 803 Excerpt	
4	EXHIBIT 20	Carcinogenic Effects of Benzene:	288
5		An Update, EPA, NCEA, April 1998	
6		Page 4 Excerpt	
7	EXHIBIT 21	Carcinogenic Effects of Benzene:	289
8		An Update, EPA, NCEA, April 1998	
9		Page 28 Excerpt	
10	EXHIBIT 22	"Short-term ozone exposure and	293
11		Asthma severity: Weight-of-evidence	
12		analysis" - Goodman, et al.	
13		Accepted 11 October 2017	
14	EXHIBIT 23	ATSDR Assessment of the Evidence	321
15		for the Drinking Water Contaminants	
16		at Camp Lejeune and Specific Cancers	
17		and Other Diseases, January 13, 2017	
18		Page 22 Excerpt	
19	EXHIBIT 24	EPA Toxicological Review of	330
20		Tetrachloroethylene	
21		(Perchloroethylene), February 2012	
22		Page 6-13 Excerpt	
23			
24			

1	Exhibit 25	Journal Pre-proof, "Long-term	343
2		exposure to low-level ambient BTEX	
3		and site-specific cancer risk: A	
4		national cohort study in the UK	
5		Biobank" - Yu, et al.,	
6		Accepted 18 March 2025	
7	EXHIBIT 26	"Evaluation of mortality among	344
8		marines and navy personnel exposed	
9		to contaminated drinking water at	
10		USMC base Camp Lejeune: a	
11		retrospective cohort study -	
12		Bove, et al., 2014	
13	EXHIBIT 27	"Morbidity Study of Former	344
14		Marines Employees, and Dependents	
15		Potentially Exposed to Contaminated	
16		Drinking Water at U.S. Marine Corps	
17		Base Camp Lejeune," April 2018, ATSDR	
18	EXHIBIT 28	"Evaluation of mortality among	344
19		Marines, Navy personnel, and civilian	
20		workers exposed to contaminated	
21		drinking water at USMC base Camp	
22		Lejeune: a retrospective cohort study	
23		- Bove, et al., 2024	
24			

1	EXHIBIT 29	"Occupational risks for renal	357
2		cancer in Sweden" -	
3		McLaughlin, et al. 1987	
4	EXHIBIT 30	"Occupational risk factors for	359
5		renal cell carcinoma: agent-specific	
6		results from a case-control study in	
7		Germany" - Pesch, et al. 2000	
8	EXHIBIT 31	"Cancer Risk among Workers at	365
9		Danish Companies using	
10		Trichloroethylene: A Cohort Study"	
11		- Raaschou-Nielsen, et al.	
12		Accepted June 24, 2003	
13	EXHIBIT 32	"Renal cell cancer and	369
14		occupational exposure to chemical	
15		agents" - Partanen, et al. 1991	
16	EXHIBIT 33	"Renal cell carcinoma and	373
17		occupational exposure to chemicals	
18		in Canada" - Hu, et al. 2002	
19	EXHIBIT 34	Amendment of Solicitation/	402
20		Modification of Contract 08/17/2022	
21		GOODMAN_USA_0000000061 - 144	
22			
23			
24			

P R O C E E D I N G S

- - -

(Documents marked for identification as Exhibit 1, Exhibit 2, Exhibit 3, Exhibit 4, Exhibit 5, Exhibit 6, and Exhibit 7.)

THE VIDEOGRAPHER: We are now on the record.

My name is Gordon Thomas. I'm a videographer for Golkow. Today's date is April 29, 2025 and the time is 9:06 AM.

This video deposition is being held at 1100 L Street, Northwest, Washington, DC 20005 in the matter of In re: Camp Lejeune Water Litigation filed in the United States District Court for the Eastern District of North Carolina, Southern Division. The deponent is Dr. Julie E. Goodman.

Will counsel please identify themselves.

MR. MANDELL: Zachary Mandell for Plaintiffs Leadership Group.

1 MR. SNIDOW: JJ Snidow for
2 Plaintiffs Leadership Group.

3 MS. GRIFFIN: Shannon Griffin
4 for Plaintiffs Leadership Group.

5 MS. JOHNSON: LaCresha
6 Johnson, United States.

7 MS. PLATT: Elizabeth Platt,
8 United States.

9 THE VIDEOGRAPHER: Zoom
10 participates will be on stenographic
11 record.

12 Will the court reporter please
13 swear in the witness.

14 - - -

15 JULIE E. GOODMAN, PHD
16 called for examination, and, after having been
17 duly sworn, was examined and testified as
18 follows:

19 - - -

20 EXAMINATION

21 - - -

22 BY MR. MANDELL:

23 Q. All set?

24 Okay. Dr. Goodman, my name is Zack

1 Mandell. We met off the record just a minute ago,
2 but for the record I'm representing the Plaintiffs
3 Leadership Group in the Camp Lejeune Water
4 Litigation.

5 You understand that; right?

6 A. Yes.

7 Q. I'm going to be asking you some
8 questions today, and what I would ask you is that
9 if at any point in time I ask you a question that
10 you don't understand, please let us know that you
11 don't understand the question.

12 Okay?

13 A. Okay.

14 Q. It's important you do that because
15 if you don't tell us that you don't understand one
16 of the questions, we're all going to assume you
17 did understand it.

18 Fair?

19 A. That is fair.

20 Q. Okay. If you need a break at any
21 point in time, just let us know. All right?
22 We're going to -- it's going to be a long day I
23 think.

24 A. Uh-huh.

1 Q. So certainly you can take a break
2 any time that you want. What I would ask you is
3 that if there is a question pending, I might ask
4 you to answer the question before you take that
5 break, but other than that, you just let us know.

6 Okay?

7 A. Okay.

8 Q. All right. Important that we not
9 talk over each other for the court reporter's
10 sake. Okay? So, and I'll try to do the same, but
11 please try to let me finish my question and I'll
12 try to let you finish your answer.

13 Fair?

14 A. That is fair.

15 Q. Okay. Would you agree that in your
16 profession there is nothing more important than
17 being an objective scientist?

18 A. It is very important to be an
19 objective scientist.

20 Q. Okay. Why?

21 A. Well, as scientists, we seek the
22 truth, and the only way to find the truth is to
23 look at the science in an objective manner.

24 Q. How do you define being an objective

1 scientist?

2 A. I would define it as using
3 methodology that will help prevent any kind of
4 bias in coming to your conclusions and making sure
5 your methods are transparent and reproducible.

6 Q. Are you aware of how many people
7 have claimed publicly that you are, in fact, not
8 an objective scientist?

9 A. I know there are a few. I disagree
10 with them.

11 Q. What are the ones that you're aware
12 of?

13 MS. JOHNSON: Objection.

14 Form.

15 THE WITNESS: I am aware of a
16 couple news articles where some people
17 have been quoted, but essentially (laugh)
18 any claims that they make regarding my
19 objectivity are not supported.

20 BY MR. MANDELL:

21 Q. Have you ever tried to apply for
22 committees either for entities or for regulatory
23 agencies that you've been rejected as an
24 applicant?

1 A. Yes.

2 MR. MANDELL: Okay. I'm going
3 to mark this as Exhibit 8.

4 (Document marked for
5 identification as Exhibit 8.)

6 MS. JOHNSON: We started?

7 MR. MANDELL: 8. I think I've
8 already marked -- for the record, let me
9 just put on the record that we have
10 marked previously before the deposition
11 started seven exhibits.

12 Exhibit 1 is Dr. Goodman's
13 report for bladder cancer.

14 2 is Dr. Goodman's report for
15 kidney cancer.

16 3 is Dr. Goodman's report for
17 Parkinson's disease.

18 4 is Dr. Goodman's report for
19 NHL.

20 5 is Dr. Goodman's report for
21 leukemia.

22 6 is Dr. Goodman's billing
23 records, which are Bates-stamped
24 GOODMAN_USA_INVOICE 1 through 403.

1 And 7 is -- Exhibit 7 is the
2 plaintiffs' notice for deposition.

3 MS. JOHNSON: Okay.

4 MR. MANDELL: So this will be
5 Exhibit 8.

6 MS. JOHNSON: All right. You
7 want to shift those over to her --

8 MR. MANDELL: Sure.

9 MS. JOHNSON: -- so she can
10 kind of reference those?

11 MR. MANDELL: Yeah.

12 MS. JOHNSON: Okay. Here we
13 go. One thing you don't have to bring
14 back. We have those.

15 MR. MANDELL: This is 8.

16 BY MR. MANDELL:

17 Q. Dr. Goodman, do you recognize this
18 document?

19 A. Yes.

20 Q. And could you tell us what this is,
21 please?

22 A. These are comments from a
23 nongovernmental organization supporting their
24 position essentially regarding candidates being

1 considered for a -- a committee that would review
2 EPA's Systematic Review Protocol for TSCA, which
3 is T-S-C-A.

4 Q. You were applying for this
5 committee; correct?

6 A. I did put my name in for
7 consideration, yes.

8 Q. Right. You applied for the
9 committee?

10 A. Yes.

11 Q. Okay. And the Environmental Defense
12 Fund had submitted comments to the EPA with regard
13 to people that were applying; fair?

14 A. Yes.

15 Q. And if you could turn to page 6,
16 your name is towards the bottom of the page; fair?

17 A. Yes.

18 Q. And this document goes through a
19 rendition of the comments from the EDF. So
20 starting with the first paragraph, it says:

21 "Dr. Julie Goodman is a Principal at
22 Gradient, an environmental and risk sciences firm
23 which primarily contracts with industry clients
24 all along the chemical supply chain."

1 First, is that true?

2 A. It is true that I work at Gradient
3 and that we are an environmental and risk sciences
4 firm, but we have many different types of clients.
5 So to say that they are primarily industry clients
6 along the chemical supply chain is not accurate.

7 Q. Okay. Is it fair that when you're
8 dealing with an issue with industry that you are
9 primarily dealing with the industry side of the
10 issue?

11 A. No, I would not characterize it that
12 way.

13 Q. Okay. The next sentence says:
14 "Dr. Goodman has published
15 manuscripts addressing critical aspects of risk
16 assessment and systematic review that were funded
17 by companies and trade associations with a vested
18 interest in how TSCA risk evaluations are
19 conducted."

20 Fair?

21 A. Are you asking if you read that
22 correctly?

23 Q. Yeah. Is that what it says?

24 A. That's what it says.

1 Q. Okay. Do you agree with that?

2 A. I would say that I have published
3 many manuscripts that are critical of certain
4 methodology with various funders, and my methods
5 are objective and have no -- the funding of my
6 comments has no bearing on what those -- or I
7 should say -- the funding of my papers has no
8 bearing on the content of those papers.

9 Q. Is it true, Dr. Goodman, that you
10 have published manuscripts addressing critical
11 aspects of risk assessment and systematic review
12 that were funded by the companies and trade
13 associations with a vested interest in how the
14 TSCA risk evaluations were conducted?

15 A. As I said, organizations that have
16 interests in these evaluations have funded my
17 work, but that funding did not impact the
18 conclusions of my work.

19 Q. But I didn't ask you about whether
20 it impacted the conclusions of your work.

21 I'm just asking you: Is that
22 sentence true?

23 A. Yes.

24 Q. Thank you.

1 The next sentence says:

2 "For example, Dr. Goodman was first
3 author of a manuscript criticizing chemical hazard
4 assessment practices of the internationally
5 renowned IARC - critiques broadly relevant to
6 chemical hazard and risk evaluations. The
7 publication was co-authored and funded by the
8 ACC."

9 True? That's what that sentence
10 says?

11 A. That is what that sentence says.

12 Q. Right. Do you agree with that?

13 A. I agree that we wrote a manuscript
14 that's cited below where we had recommendations to
15 improve the IARC monograph program.

16 Q. Okay. That publication was
17 co-authored and funded by the ACC; is that true?

18 A. Yes.

19 Q. And who is -- what is the ACC?

20 A. The American Chemistry Council.

21 Q. And what do they do?

22 A. They are a trade organization, and I
23 know their member companies are in the chemical
24 industry. I don't know the precise umbrella of

1 all the companies that are members, but they are
2 involved with chemicals.

3 Q. All right. You've worked with them
4 pretty frequently, haven't you?

5 MS. JOHNSON: Objection to
6 form.

7 THE WITNESS: I have.

8 BY MR. MANDELL:

9 Q. Okay. And is it your testimony that
10 you don't know who the members of the American
11 Chemistry Council are?

12 A. No. What I'm saying is I don't know
13 what the boundaries are. They are companies
14 involved with chemicals.

15 Q. Okay. When it says "co-authored,"
16 what does that mean?

17 A. Most publications have several
18 authors. So the coauthors are the other people
19 that are authors on the paper.

20 Q. Okay. So in this situation, the
21 American Chemistry Council had a direct -- had an
22 interest in the outcome of this manuscript and
23 they funded the article, co-authored it with, you
24 and you put it out for publication; true?

1 MS. JOHNSON: Objection.

2 Form.

3 THE WITNESS: You are asking
4 did they provide funding and was there
5 also an author from ACC on the paper?
6 Was that the question?

7 BY MR. MANDELL:

8 Q. That's exactly, yes, that's what I'm
9 asking.

10 A. Then, yes.

11 Q. Okay. How much were you paid to
12 write that article?

13 A. Well, I don't get paid directly. My
14 company gets paid and I do the work during my
15 normal course of business, and I have no idea.

16 Q. Is there like a standard fee that
17 you're paid to write those type of articles,
18 manuscripts, that type of thing?

19 A. We -- we bill by the hour. So it's
20 based on how many hours it takes to write them.

21 Q. Do you have any idea of how long you
22 would have spent on that?

23 A. I really can't remember.

24 Q. Okay. When was it?

1 A. Well, it was published in 2020. So
2 I imagine we did the work in 2019 and 2020.

3 Q. What was the outcome of the paper,
4 the manuscript? What was point you were trying to
5 get across?

6 A. We felt that IARC could be doing a
7 better job of being systematic and objective in
8 reviewing evidence on chemicals or on -- on agents
9 that it evaluates.

10 Q. And when you say "do a better job,"
11 do you mean be more stringent in the requirements?

12 A. I mean be more objective in how they
13 evaluated data.

14 Q. Well, when you say that, is what you
15 were ultimately concluding that they needed to be
16 more robust, be more stringent in terms of what
17 chemicals they said could cause certain diseases?

18 A. No. The -- the goal of this paper
19 wasn't to change anything regarding specific
20 chemicals. Although we probably used specific
21 chemicals as examples. The goal was to say if
22 you're going to evaluate chemicals or other
23 agents, you should use an objective, systematic,
24 transparent methodology.

1 Q. And you were claiming that IARC
2 wasn't using an objective, systematic methodology.
3 Is that essentially what you're
4 saying?

5 A. Yes.

6 Q. How would you describe IARC in terms
7 of their role in this process, meaning the
8 analysis of chemicals to diseases?

9 A. So in terms of this monograph
10 program, IARC pulls together a group of
11 scientists, and those scientists meet for a week
12 and in that -- or -- or 8 to 10 days maybe it is,
13 but they meet over various sort amount of time and
14 discuss the -- the state of the literature for
15 whatever agent they're called to meet and then
16 publish a monograph.

17 Q. I may have asked my question not
18 properly. Let me phrase it differently.

19 Are they a well-respected body?

20 A. I think --

21 MS. JOHNSON: Objection.

22 Form.

23 THE WITNESS: I don't know
24 how to answer that. I --

1 BY MR. MANDELL:

2 Q. How -- I'm sorry. You finish your
3 answer.

4 A. I think over the years many people
5 have had issues with the way in which they conduct
6 their analyses.

7 Q. Have you ever heard them be referred
8 to as the gold standard in the industry?

9 A. I have not.

10 Q. Never heard that?

11 A. No.

12 Q. Okay. The next sentence -- the next
13 paragraph says:

14 "Another example is an ACC-funded
15 publication Dr. Goodman co-authored arguing
16 against using linear low-dose extrapolation for
17 noncancerous effects - in contrast to
18 recommendations of the National Academies. These
19 are but two of a number of Dr. Goodman's -- of
20 Goodman's publications funded by the chemical
21 industry that review and make recommendations
22 related to risk assessment."

23 True?

24 A. You read that correctly.

1 Q. Okay. And that's what I meant.

2 A. (Laugh).

3 Q. And is this -- is that paragraph
4 true?

5 A. Well, I think it's true that the
6 National Academies put forth this idea that one
7 could change the methodology being used, and still
8 being used, mind you, by EPA and other agencies,
9 of using threshold models to evaluate noncancer
10 health effects.

11 And so we essentially agreed with
12 what EPA is doing there and talked about why the
13 arguments put forth by the National Academies is
14 not -- is not supported by the science.

15 In fact, we had another publication
16 that just came out this year building on that
17 argument.

18 Q. So your conclusion in part was that
19 the methodology from the National Academies was
20 not appropriate; fair?

21 A. Yes, in this case, that the EPA
22 methodology was more appropriate than what the
23 National Academies was recommending.

24 Q. And this was funded by the ACC;

1 true?

2 A. I -- I can't recall. That's what it
3 says here. We can easily confirm it by looking at
4 the paper.

5 Q. Yeah. And we have the paper if we
6 need it, but do you have any reason to dispute
7 that this is an ACC-funded publication?

8 A. Not as I sit here.

9 Q. Okay. And how much were you paid
10 for this one?

11 A. (Laugh). That one was 14 years ago,
12 and I really don't know that. (Laugh).

13 Q. The next sentence says in the -- in
14 the Exhibit 8. It's on the next page.

15 "Dr. Goodman has received funding
16 from companies that have a financial interest in
17 chemicals that are or could be under review by
18 EPA. For example, Dr. Goodman has received
19 extensive industry funding for her work on health
20 effects from asbestos, which has led to numerous
21 publications, presentations, and litigation
22 support. Further, Dr. Goodman submitted written
23 comments to the SACC on its peer review of
24 asbestos; remarkably, in light of this history,

1 Dr. Goodman's comments assert they were developed
2 'with no financial support.' "

3 Did I read that correctly?

4 A. You did read that correctly.

5 Q. Do you agree with that paragraph?

6 A. So as I -- I do my work and I
7 receive funding to do the work I do, it is true
8 that I have gotten funding to evaluate the health
9 risks of asbestos. And note that actually in all
10 these cases, it has been published in the
11 peer-reviewed literature, and so peer reviewers
12 that I assume have nothing to do with industry
13 have deemed the science objective and important
14 and worthy of publication.

15 But setting that aside, this idea
16 that it is absolutely true we receive no financial
17 support for those comments. We wrote those
18 comments and actually wrote a manuscript, and all
19 of the time spent on those comments were done on
20 overhead. We did not get any -- any funding for
21 that.

22 Q. So you submitted a comment to the
23 SACC relating to a peer review of asbestos, an
24 issue with asbestos; fair?

1 A. Yes, I have --

2 Q. Just yes.

3 A. Sorry. What was the question again?

4 Q. The question was just yes or no.

5 You have submitted written comments to the SACC on
6 its peer review of asbestos?

7 A. Yes.

8 Q. Okay. And in that comment, you did
9 not assert that you had any financial support for
10 that comment; fair?

11 A. I asserted that I had no financial
12 funding.

13 Q. I think -- that's what I was
14 intending to say.

15 A. Okay.

16 Q. You did not claim you had no
17 financial support and had no conflict of interest;
18 is that true?

19 A. I did not have any funding. I would
20 be shocked if we didn't put under the Declaration
21 of Interest that we have received funding from
22 industries for other activities related to this.

23 Q. Okay. So, and we can take a look at
24 that article too, but bottom line is you

1 definitely put with no financial support; true?

2 A. For these particular comments, yes.

3 Q. Okay. And you have -- you have
4 worked with asbestos companies for decades; true?

5 A. I don't know if I would call them
6 all asbestos companies. I have -- I have had
7 clients that have funded work on asbestos, yes.

8 Q. You have served as an expert witness
9 for defendants in asbestos cases; true?

10 A. Yes.

11 Q. You have written publications for
12 asbestos companies; true?

13 A. How do you define an asbestos
14 company?

15 Q. Either the company itself, WR Grace,
16 trade organizations, how -- any way you would want
17 to define it, but ultimately supporting the
18 asbestos industry; true?

19 MS. JOHNSON: Objection to
20 form.

21 THE WITNESS: Yeah, I guess I
22 just don't know that I would classify all
23 of them as supporting the asbestos
24 industry.

1 BY MR. MANDELL:

2 Q. Well, have you written articles that
3 have been funded by either asbestos manufacturers
4 or asbestos -- organizations of asbestos
5 manufacturers?

6 A. I mean, asbestos is mined. It's not
7 really manufactured. But I have had funding from
8 companies that have, I guess, mined asbestos or
9 used asbestos.

10 Q. Okay. You've written articles that
11 were funded by law firms who defend asbestos
12 claims; true?

13 A. A couple of the articles were funded
14 by law firms.

15 Q. Three or four of them?

16 A. I can only think of two, but I might
17 be forgetting.

18 Q. Okay. Well, you know a guy named
19 Evan Nelson, don't you?

20 A. I do.

21 Q. And did you not attempt to publish
22 three articles for Evan Nelson himself and his law
23 firm?

24 A. I wouldn't say it was for Evan and

1 his law firm. I received funding from his law
2 firm.

3 Q. Well, if they -- isn't it true --
4 and we can get into it in a little bit, but isn't
5 it true that Evan Nelson contacted you and or --
6 strike that.

7 Isn't it true that Evan Nelson
8 contacted Gradient in an attempt to get them to
9 write articles for his law firm, publish them?

10 MS. JOHNSON: Objection.

11 Foundation.

12 THE WITNESS: Evan Nelson
13 contacted Peter Valberg to look into
14 some, I guess, scientific issues having
15 to do with asbestos and smoking and
16 mesothelioma risk.

17 BY MR. MANDELL:

18 Q. Right. He paid you to write
19 articles; right?

20 A. He gave us -- he -- he paid Gradient
21 for our time to write the articles.

22 Q. Right. He paid the business of
23 Gradient, and the reason for that payment was so
24 that you would write articles; true?

1 A. Yes.

2 Q. Okay. And you attempted to publish
3 two of them or you -- strike that.

4 You did publish two of them; right?

5 A. Yes.

6 Q. And one of got rejected; fair?

7 A. Yes.

8 Q. Okay. Do you think that somebody
9 looking from the outside might think that that
10 history with asbestos would be misleading for you
11 to put with no financial support when you wrote
12 this comment to the SACC on the peer review of
13 asbestos?

14 A. No.

15 MS. JOHNSON: Objection to
16 form.

17 BY MR. MANDELL:

18 Q. Okay. The next page, Dr. Goodman,
19 page 9, it says:

20 "Dr. Goodman has also published work
21 on environmental pollutants outside the purview of
22 TSCA for private entities that have a vested
23 interest in chemical assessment activities
24 occurring under TSCA. For example, she has

1 received extensive funding from the American
2 Petroleum Institute and ExxonMobil for research on
3 air pollutants and other various health outcomes."

4 Did I read that correctly?

5 A. You did.

6 Q. Is that true?

7 A. Yes.

8 Q. The next sentence says:

9 "Dr. Goodman's notoriety as a
10 scientist hired by companies and trade
11 associations to advocate on behalf of their
12 financial interests was featured in an
13 investigative article by the Center for Public
14 Integrity. In this article, CPI describes many of
15 Gradient's chemical industry-funded projects,
16 including those led or co-led by Dr. Goodman,
17 noting the poor scientific merits of Gradient's
18 work."

19 Did I read that correctly?

20 A. You read that correctly, but I would
21 say the article was not -- the article had some
22 things that were wrong and some things that were
23 very misleading.

24 Q. Okay. Do you agree that the "CPI

1 describes many of Gradient's chemical
2 industry-funded projects, including those led or
3 co-led by Dr. Goodman, noting the poor scientific
4 merits of Gradient's work"?

5 A. I think the CPI describes some of
6 our projects, but was either misleading or wrong
7 in describing those projects, and I would -- I am
8 happy to discuss anything to demonstrate how the
9 reports -- the work that we do is done in a
10 rigorous manner.

11 Q. Have you ever testified that --
12 under oath -- that the CPI article did not have
13 anything to do with the scientific merits of your
14 work but instead was more related to funding?

15 MS. JOHNSON: Objection.

16 Form.

17 THE WITNESS: I can't recall
18 saying that.

19 BY MR. MANDELL:

20 Q. Okay. Do you think that that's
21 true?

22 A. I think part of the focus of this
23 article has to do with who funded things rather
24 than the actual scientific merit of the work, but

1 there were also statements made about merit of the
2 work that were untrue.

3 Q. Okay. So you agree that that
4 article was noting the poor merits -- poor
5 scientific merits of Gradient's work; is that
6 true?

7 A. I note the article interviewed a few
8 people who were either misleading or wrong.

9 Q. All right. Would you -- strike
10 that.

11 There's a number of examples on page
12 10 of other work in which you have conducted that
13 is on behalf of industry for which your ultimate
14 conclusion was beneficial to that industry; is
15 that fair?

16 A. My conclusion was what the science
17 said. I had -- whether or not it was beneficial
18 was not really part of the work.

19 Q. But as a matter of fact, isn't that
20 the truth?

21 A. (Reviews document.)

22 I -- I can't say either way. I
23 mean, I did the evaluation. The science is what
24 it is, and if it -- if it was beneficial, it was.

1 If it wasn't, it wasn't.

2 Q. Well, but all of these on this page,
3 in fact, were beneficial; is that true? Do you
4 dispute that?

5 A. I don't -- you'd have to define what
6 you mean by beneficial.

7 Q. Okay. Well, let's look at like
8 bullet point number 2.

9 "Gradient's Goodman wrote a lengthy
10 public comment in 2014 paid for by a manufacturer
11 of n-propyl bromide. In it, Goodman argued that a
12 government study showing high rates of cancer
13 among rats exposed to the chemical had no
14 relevance to humans."

15 True? That's what that sentence
16 says?

17 A. Yes.

18 Q. Do you think that arguing that a --
19 and we can go through it in the CPI article, but
20 do you believe that arguing that a study -- this
21 study, the government study, showed a connection
22 between n-propyl bromide and certain diseases;
23 right?

24 A. I can't remember the details of that

1 study, but oftentimes in toxicology studies there
2 are findings that are equivocal or not relevant to
3 humans, and this is one of those cases.

4 Q. Okay. And you used that argument in
5 our case in multiple different situations; true?

6 MS. JOHNSON: Objection.

7 Form.

8 BY MR. MANDELL:

9 Q. Meaning the Camp Lejeune Justice
10 Act?

11 A. When it was true, then I would use
12 those arguments. It's not always true but often
13 it is.

14 Q. My question is: You have used the
15 argument that animal studies have higher exposures
16 and, therefore, they are not relevant to humans in
17 our Camp Lejeune case; true?

18 MS. JOHNSON: Objection.

19 Form.

20 THE WITNESS: I have made the
21 point that animal studies have to use
22 higher doses and I have -- if you look in
23 the Method section of any of my papers --
24 well, that -- that's a limitation of all

1 animal studies across the board, and
2 depending on the outcome you're looking
3 at, particularly if it's a noncancer
4 outcome, if the exposures are --

5 BY MR. MANDELL:

6 Q. Dr. Goodman, I don't mean to cut you
7 off but I --

8 MS. JOHNSON: You need to let
9 her finish, though.

10 MR. MANDELL: Well, we're not
11 going to be able to finish in seven hours
12 I'm pretty sure if we do this.

13 MS. JOHNSON: She's trying to
14 answer your question.

15 MR. MANDELL: I understand,
16 but the question was just -- could you
17 read back the question?

18 I'm going to try to -- I'm
19 sorry.

20 (The reporter read the record
21 on page 40 lines 14-17.)

22 THE WITNESS: I think you
23 asked me that question twice and the
24 answer is still" in the cases when the

1 studies are not relevant to humans, I
2 have put forth that argument in my
3 reports.

4 BY MR. MANDELL:

5 Q. So, yes, you did it in this case;
6 right?

7 A. When it was true, yes.

8 Q. But would you ever do it when you
9 thought it was false?

10 A. No.

11 Q. Okay. So the last sentence of the
12 article says:

13 "Given Dr. Goodman's close
14 affiliation with, and financial ties to, chemical
15 companies as well as ACC and other trade
16 associations, we believe she has financial
17 conflicts of interest and a significant appearance
18 of loss of impartiality with respect to TSCA
19 chemical risk evaluations and the Systematic
20 Review Protocol."

21 Did I read that correctly?

22 A. You read that correctly.

23 Q. Do you agree with that?

24 A. No.

1 Q. Okay. You didn't make the
2 committee, did you?

3 A. I did not.

4 Q. Do you know why?

5 A. I do not.

6 Q. Did you ever try to find out?

7 A. No.

8 Q. You, I think, said earlier that you
9 were aware of these comments prior to today; is
10 that true?

11 A. Yes.

12 Q. When did you find out about them?

13 A. I can't remember.

14 Q. Did you find out around the time
15 when you were attempting to get on this committee?

16 A. I can't remember.

17 Q. Okay. So your testimony is that you
18 don't remember when it was that you first saw
19 these comments that were submitted on January 28,
20 2022, just a couple years ago; right?

21 A. Right.

22 Q. It must have been in the last three
23 or so years; true?

24 A. Yes.

1 Q. Okay. When you first found out
2 about them, did you attempt to do anything to try
3 to correct the record?

4 A. No.

5 Q. Okay. They were attacking your
6 scientific objectivity; fair?

7 A. Yes.

8 Q. And did you -- strike that.
9 Any other committees that you've
10 applied for that you've been rejected from?

11 A. I can't think of any as I sit here.

12 Q. Do you know anything about the
13 Environmental Defense Fund?

14 A. A little bit.

15 Q. Do you know who their board of
16 directors is?

17 A. I do not.

18 Q. Do you know how many employees they
19 have?

20 A. I do not.

21 Q. Do you know what their funding is?

22 A. I do not.

23 Q. I know you've heard of the Center
24 for Public Integrity; true?

1 A. Yes.

2 Q. And you've read their article that
3 they wrote addressing conduct of Gradient and
4 yourself; fair?

5 A. I don't know if I'd call it conduct,
6 but yes, it addressed Gradient and me
7 specifically.

8 Q. What would you call it if it's not
9 conduct?

10 A. I don't know. Our research I guess.

11 Q. So you've read -- you've read the
12 article from the Center for Public Integrity that
13 has critiqued your research; true?

14 A. Yes, and as I said, it's misleading
15 in places and wrong in places.

16 MR. MANDELL: Can you mark
17 this as Exhibit 9, please.

18 (Document marked for
19 identification as Exhibit 9.)

20 THE WITNESS: Thank you.

21 BY MR. MANDELL:

22 Q. If you could please just turn to
23 page 3 for me. The third paragraph in that on
24 that page states:

1 "Gradient belongs to a breed of rare
2 scientific consulting firms that defends the
3 products of its corporate clients beyond
4 credulity, even exhaustively studied substances
5 whose dangers are not in doubt, such as asbestos,
6 lead and arsenic."

7 Did I read that correctly?

8 A. You read that correctly, but the
9 sentence is untrue.

10 Q. Okay. And the next -- not the next
11 paragraph, but the next one says in quotes:

12 "'They are truly the epitome of
13 rented white coats,' says Bruce Lanphear, a Simon
14 Fraser University professor whose own research
15 showing that even tiny amounts of lead could harm
16 children has been called into question by Gradient
17 scientists. A panel of experts convened by the
18 Centers for Disease Control and Prevention
19 concluded in 2012 that there is no reliable
20 evidence for a safe level of lead."

21 Did I read that correctly?

22 A. You read that correctly.

23 Q. Okay. And do you disagree with that
24 sentence?

1 A. I disagree.

2 Q. Okay. And you did or Gradient did
3 write an article calling into question the Centers
4 for Disease Control and Prevention, their
5 conclusion in 2012 that there's no reliable
6 evidence for safe level of lead; true?

7 A. I don't -- I don't think I wrote an
8 article about that.

9 Q. Okay. Any reason to dispute this
10 sentence in this article?

11 A. Which? The first or the second one?

12 Q. That paragraph.

13 A. Yes.

14 Q. So you don't believe that -- that
15 anybody from Gradient ever did call into question
16 the Centers for Disease Control and Prevention
17 2012 conclusion that there's no reliable evidence
18 for a safe level of lead?

19 A. No. There have been others at
20 Gradient who have published on this topic, and in
21 the end CDC does not say that there is no safe
22 level. It just says they weren't able to identify
23 one, which is very different statement.

24 And I think this idea that because

1 we among others --

2 Q. Dr. Goodman, with all due respect,
3 and I don't mean to cut her answer off, but we're
4 not going to be able to finish in seven hours if
5 we keep doing this.

6 So the question just is: Do you
7 agree that that's true that somebody at Gradient
8 did that or not?

9 A. Do I agree.

10 Well, I do not agree we're the
11 "epitome of rented white coats." So I do not
12 agree to that whole paragraph.

13 Q. Do you agree that there was somebody
14 from Gradient that called into question the CDC
15 prevention conclusion in 2012 that there was no
16 reliable evidence for a safe level of lead?

17 A. Again, I don't think that's exactly
18 what CDC said.

19 Q. Okay. Would you agree that there
20 was a Gradient article that called into question
21 the CDC prevention conclusion in 2012 relating to
22 the levels of lead that existed that were safe?

23 A. I would agree that Gradient
24 scientists have published studies demonstrating

1 that there very low levels of lead are safe.

2 Q. Okay. And that was in controvention
3 to the CDC; true?

4 A. It is not necessarily un --
5 inconsistent with what CDC said.

6 Q. Okay. If you could turn to -- what
7 did -- any idea why they would write that it was
8 if it wasn't?

9 A. No.

10 Q. No.

11 Bruce Lanphear. Do you know this
12 person?

13 MS. JOHNSON: Objection.

14 Foundation.

15 THE WITNESS: I know who he
16 is.

17 BY MR. MANDELL:

18 Q. Okay. You've read this sentence
19 before; true?

20 A. Yes.

21 Q. Ever try to contact him to figure
22 out why he would say that about you?

23 A. No.

24 Q. Ever try to contact anybody at Simon

1 Fraser University to figure out what's going on,
2 why Bruce Lanphear would say this about you?

3 A. No.

4 Q. He is very directly questioning your
5 scientific objectivity; true?

6 A. Yes.

7 Q. And despite that, you've done
8 nothing to try to figure out why that's true;
9 right?

10 A. That's correct.

11 Q. To try to correct this record that
12 has been created by him in this article; fair?

13 MS. JOHNSON: Objection.

14 Form.

15 THE WITNESS: I have not
16 tried to correct this article.

17 BY MR. MANDELL:

18 Q. Any reason why not?

19 A. Because I don't see the point in
20 doing so. The fact that there's a small group of
21 people that are either spreading misinformation or
22 disinformation, there's plenty of other people who
23 acknowledge the -- the good work that we do.

24 Q. Okay. If you could turn to page 7

1 for me, please.

2 The second paragraph or the first
3 full paragraph, it says:

4 "Gradient maintained that humans are
5 exposed to far less BPA than the animals in those
6 studies."

7 Do you see that?

8 A. Yes.

9 Q. And then the second sentence says:

10 "Frederick vom Saal, a University of
11 Missouri professor who has investigated BPA for
12 more than two decades, called that argument
13 'complete nonsense.'"

14 A. You read that correctly.

15 Q. Did Gradient maintain that humans
16 are exposed to far less BPA than the animals in
17 the studies that were being performed?

18 A. Yes.

19 Q. And that's, again, a very similar
20 type of argument that you're making in our case,
21 the Camp Lejeune case, in terms of the animal
22 studies relating to the five diseases at issue;
23 true?

24 A. I -- (laugh). I always do my

1 analyses the same way using scientific rigor and
2 objectivity, and if the results happen to be
3 similar for BPA as they are for the chemicals at
4 issue here, then the results are going to be the
5 same.

6 Q. So, yes, it's a very similar type
7 argument where you're saying that the animals were
8 dosed higher than humans and so, therefore, it's
9 not applicable; true?

10 MS. JOHNSON: Objection.

11 Form.

12 THE WITNESS: I think it's
13 not really appropriate to say it's not
14 applicable. I think the idea is, is when
15 you see an effect and it only happens
16 after a huge dose, you cannot conclude
17 that a similar effect would happen at a
18 lower dose.

19 BY MR. MANDELL:

20 Q. So that's the argument you're making
21 in this case for a number of the animal studies;
22 is that true?

23 A. Yes.

24 Q. Okay. Did you ever contact

1 Frederick vom Saal to ask him why he called
2 Gradient's argument "complete nonsense"?

3 A. No.

4 Q. Ever try to correct that record to
5 say that maybe it wasn't complete nonsense?

6 A. I have many publications on BPA, and
7 I think they speak for themselves.

8 Q. So the answer is, there's no reason?

9 A. I think the -- our evaluations are
10 out there in the peer-reviewed literature. So
11 there's no need to address him directly.

12 Q. Okay. The next sentence says:

13 "'You create a false statement of
14 fact, and then you discount a whole literature,'
15 vom Saal said.

16 "A group of academic researchers
17 were so outraged by an article on BPA written by
18 Gradient's Julie Goodman and Lorenz Rhomberg that
19 they wrote a lengthy response with a table listing
20 all the 'false statements' in it.

21 "In this article -- 'In this
22 article, there is nothing that is true,' vom Saal
23 said. 'It's ridiculous. And that's how they
24 operate.' "

1 Did I read that correctly?

2 A. You read his misinformation
3 correctly, yes.

4 Q. Okay. You disagree with that;
5 right?

6 A. Yes, and we --

7 Q. So, yes?

8 A. Yes.

9 Q. So it's another person that you're
10 disagreeing with that is questioning your
11 scientific objectivity; true?

12 A. Yes.

13 Q. And you never contacted him about
14 these statements either, I presume; true?

15 A. I believe I addressed all those
16 statements that he claimed showed that we were
17 wrong or making stuff up, and we demonstrated one
18 by one why what he was saying was actually
19 incorrect.

20 Q. Where did you do that?

21 A. It was in one of our peer-reviewed
22 publications.

23 Q. Meaning you wrote an article and you
24 put forth what you believed the science was; true?

1 A. I -- my colleagues and I have
2 written several articles on bisphenol-A with --
3 conducted in an objective manner with evidence to
4 support all of our statements.

5 Q. Right, but you never contacted him
6 directly or directly addressed these statements;
7 fair?

8 A. That's fair.

9 Q. Okay. If you turn to page 8,
10 please.

11 At the -- towards the bottom, the
12 second to the last paragraph, it says -- last full
13 paragraph says:

14 "Gradient's clients include two of
15 the most powerful lobby groups in Washington, the
16 American Petroleum Institute and the American
17 Chemistry Council. Other frequent clients include
18 Navistar, a diesel truck manufacturer, and the
19 Texas Commission on Environmental Quality, a
20 regulatory agency that has a history of aligning
21 with industry."

22 Did I read that correctly?

23 A. You read that correctly.

24 Q. Is that true those are your clients,

1 Gradient's clients?

2 A. I don't know about Navistar. The
3 other ones have been or are Gradient's clients.

4 Q. And the next paragraph says:

5 "Gradient has become a leading
6 scientific voice in trying to prevent further
7 regulations of air pollution. That puts its
8 scientists at odds with former colleague at
9 Harvard School of Public Health, such as Dockery."

10 True? Did I read that correctly?

11 A. You read that correctly.

12 Q. Then it says:

13 "Dockery was among a team of
14 scientists at Harvard who after the Arab oil
15 embargo in 1973 set out to evaluate the health
16 effects of burning domestic coal instead of
17 foreign oil to generate power. With funding from
18 the National Institutes of Health, the Harvard
19 scientists recruited more than 8,000 volunteers in
20 six cities living near coal-burning plants.
21 Monitors were used in each city to measure soot
22 and smog."

23 True?

24 A. You read that correctly.

1 Q. All right. And then a little
2 further down the next -- not the next paragraph
3 but the next one, it says:

4 "The results of the Six Cities Study
5 were so dramatic that researchers decided they
6 couldn't publish without corroboration, Dockery
7 said. The Harvard scientists were able to
8 convince the American Cancer Society to share data
9 on the health of 1.2 million volunteers tracked
10 since 1982. The researchers matched it to EPA
11 data on soot and came up with similar results."

12 True?

13 A. You read that correctly.

14 Q. Okay. And then ultimately they came
15 out with a statement; true? A position?

16 MS. JOHNSON: Objection to
17 form.

18 THE WITNESS: I'm sorry.

19 Who?

20 BY MR. MANDELL:

21 Q. Okay. Little further down it says:
22 "According to the EPA, none of its
23 regulations saved as many as lives as the Clean
24 Air Act. The agency estimates that in 2010, rules

1 on soot and smog kept 164,000 Americans from dying
2 prematurely, mostly from heart attacks. By 2020,
3 it expects the number of lives saved annually to
4 rise to 237,000."

5 True?

6 A. You read that correctly.

7 Q. Okay. In the paragraph before, it
8 says:

9 "But that changed in 1997 when the
10 EPA - under pressure from courts to enforce the
11 Clean Air Act - used the studies as the basis for
12 new air-pollution rules."

13 True?

14 A. You read that correctly.

15 Q. Right. So there were new air
16 pollution rules put out by the EPA; fair?

17 MS. JOHNSON: Objection to
18 form.

19 THE WITNESS: Yes.

20 BY MR. MANDELL:

21 Q. Okay. And ultimately, on the next
22 page, it says down towards the bottom:

23 "Since then, however, Gradient
24 scientists have taken a leading role in trying to

1 cast doubt on the studies' findings. Gradient has
2 published 37 articles on different aspects of air
3 pollution, funded by the API, Navistar and the
4 International Carbon Black Association, whose
5 members are subject to clean-air regulations."

6 True?

7 A. You read that correctly.

8 Q. Okay. The next sentence says:

9 "In Congressional testimony in
10 2012 -- you -- Goodman accused the EPA of being
11 biased by giving too much weight to the Harvard
12 and American Cancer Society studies while ignoring
13 'dozens of other epidemiology studies,' including
14 many that found no health problems caused by
15 current levels of air pollution."

16 Did I read that correctly?

17 A. You did.

18 Q. Do you agree with that?

19 A. Yes.

20 Q. Okay.

21 "In her testimony, Goodman cited
22 only six studies that she said show harmful
23 effects from soot. But two of those studies were
24 funded by industry. And authors of the other four

1 say their findings supports those of the Six
2 Cities Study."

3 Did I read that correctly?

4 MS. JOHNSON: Objection to
5 form.

6 MR. SNIDOW: It says "no
7 harmful effect."

8 MR. MANDELL: "No harmful
9 effect." What did I say?

10 MR. SNIDOW: Harmful effect.

11 MR. MANDELL: Oh, sorry. "No
12 harmful effect." Thank you.

13 BY MR. MANDELL:

14 Q. Did I read that correctly?

15 A. You read that correctly.

16 Q. Okay. Do you agree with that?

17 A. I can't remember how many studies
18 that I cited, but I do know in Congressional
19 testimony you don't get that much time to speak.

20 Q. So any reason to dispute that you
21 cited six articles, two of which were funded by
22 industry, and the authors of the other four say
23 that their findings are fore those of the other
24 six studies?

1 A. Again, I can't remember the details.

2 Q. Do you have any reason to dispute
3 that that's true?

4 A. I have no reason to dispute or
5 confirm it.

6 Q. Okay. So then the next paragraph
7 says:

8 "'It would be wrong for her to say
9 that we didn't find an effect,' said Dr. Bill
10 McDonnell, a former EPA scientist whose work was
11 cited by Goodman. 'We did find a relationship.
12 It just seems like you can just make up your own
13 facts now.'"

14 Do you see that?

15 A. I see what's written on the page.

16 Q. Okay. Did you cite Dr. Bill
17 McDonnell as one of the supports?

18 A. I can't remember as I sit here.

19 Q. Okay. Did you ever contact Dr. Bill
20 McDonnell to figure out why he would say that what
21 you were saying was wrong?

22 A. No.

23 Q. Have you ever testified -- strike
24 that.

1 Did you testify under oath just last
2 September that you did remember this article by
3 Bill McDonnell?

4 MS. JOHNSON: Objection.

5 Form.

6 THE WITNESS: I don't know.

7 BY MR. MANDELL:

8 Q. Okay. So if you did remember that
9 last September, you have just since forgotten it
10 till today; true?

11 A. I don't know what I was --

12 MS. JOHNSON: Objection.

13 THE WITNESS: -- asked in
14 September. I don't remember the specific
15 articles that I cited in my testimony, as
16 I sit here today.

17 BY MR. MANDELL:

18 Q. There are a number of other issues
19 that this article brings out in terms of
20 questioning your scientific objectivity; is that
21 fair?

22 A. I don't really think it's fair
23 because I think this is not an objective article
24 and the issues it brings up aren't really founded.

1 Q. Well, but that -- my question was
2 simply: Would you agree that the article is
3 questioning your scientific objectivity?

4 A. I think that it's -- while the
5 article is doing that, it is not doing it on an
6 objective basis and not considering all of the
7 facts.

8 Q. I'm just asking if that's true that
9 that's what this article is doing.

10 MS. JOHNSON: She's trying to
11 answer your question, counsel.

12 BY MR. MANDELL:

13 Q. Well, can you answer it yes or no?

14 A. I don't think I can because I think
15 answering yes implies that there's a valid basis
16 for that when there isn't.

17 Q. Is that how you understood my
18 question to also imply whether the basis was valid
19 or not?

20 A. That's what I thought.

21 Q. Okay. Well, take that out of it,
22 okay? I'm not asking whether it's valid or not.

23 I'm saying: Isn't it true that
24 there are a myriad of examples in this

1 article -- in this article that question your
2 scientific objectivity?

3 A. Without considering whether it's
4 valid, yes.

5 Q. Okay. Have you ever tried to
6 contact any one of the people in this article to
7 ask them why they were doing this if it wasn't
8 true?

9 A. No.

10 Q. Have you ever tried to publicly
11 state anywhere that any of this isn't true?

12 A. Only when asked.

13 Q. Any reason why not?

14 A. I believe my work speaks for itself.

15 Q. We have talked a little while ago
16 about the Evan Nelson articles.

17 Do you remember that?

18 A. Yes.

19 Q. Okay. And you have done a lot of
20 testifying in asbestos cases in the past; is that
21 true?

22 A. Yes.

23 Q. You have contracts with asbestos
24 manufacturers or companies that have produced

1 asbestos; is that true?

2 A. Yes.

3 Q. And one of the lawyers, this Evan
4 Nelson who defended asbestos claims, reached out
5 to your partner or other co-principal; is that
6 fair?

7 A. I was junior staff at the time and
8 he reached out to Peter Valberg, yes.

9 Q. Okay. And he asked you-all to write
10 some articles and he paid you to write them; fair?

11 MS. JOHNSON: Objection.

12 Form.

13 THE WITNESS: He asked us to
14 evaluate the science and submit our
15 evaluation for publication.

16 BY MR. MANDELL:

17 Q. And one of the articles that he had
18 asked you about trying to write would be
19 supporting the proposition that smoking causes
20 mesothelioma; true?

21 A. He did ask us to look into that,
22 yes.

23 Q. Okay. And you were brought in as a
24 lead scientist on this project; is that fair?

1 A. Yes.

2 Q. And it actually turned into three
3 different articles for that one firm; is that
4 true?

5 A. Yes.

6 Q. And in testifying so much for
7 asbestos companies, you understand that there are
8 ways that these companies try to defend cases of
9 asbestos exposure against them, and one of the
10 ways is that they try to point to other potential
11 causes of the mesothelioma; true?

12 MS. JOHNSON: Objection.
13 Form.

14 THE WITNESS: I mean, that's
15 a legal question. I can answer as a
16 person, not a scientist.

17 BY MR. MANDELL:

18 Q. Well, how about as an expert in
19 defending these cases? Have you ever tried to do
20 that?

21 A. I'm sorry. Tried to do what?

22 Q. Have you ever tried to say that the
23 cause of an asbestos either mesothelioma or other
24 asbestos-related disease was caused by something

1 other than asbestos when you're defending those
2 claims?

3 A. Well, I think I would just want to
4 be clear that I'm not defending anything. I'm
5 just looking at what the science says.

6 But when I do a specific causation
7 analysis, I determine what is the most likely
8 cause of somebody's health condition.

9 Q. Have you ever, when you are acting
10 on behalf of the defense in an asbestos-related
11 case, tried to say that something other than the
12 asbestos caused the disease at issue in that case?

13 A. I think I just answered that.

14 The --

15 Q. So is the answer yes?

16 MS. JOHNSON: Counsel. Go
17 ahead and answer the question, then I'm
18 going to -- we're going to have to take a
19 break.

20 MR. MANDELL: Okay.

21 THE WITNESS: When I evaluate
22 specific causation, I determine what the
23 most likely cause of someone's health
24 outcome is. So if it is an asbestos case

1 and there's something else that is a more
2 likely cause, then I will conclude that
3 this is a more likely cause.

4 MR. MANDELL: Okay. Just one
5 more question, if that's okay?

6 MS. JOHNSON: One more, then
7 we're going off the record.

8 BY MR. MANDELL:

9 Q. Okay. So it is true that you have
10 done that in the past; is that true?

11 A. In the past, I have evaluated
12 alternative causes for someone's claimed health
13 condition.

14 MR. MANDELL: Okay. Thank
15 you.

16 MS. JOHNSON: Let's take a
17 break.

18 MR. MANDELL: Sure.

19 THE VIDEOGRAPHER: The time is
20 9:59 AM. We're going off the record.

21 (A recess was taken.)

22 THE VIDEOGRAPHER: The time is
23 10:09 AM. We are going back on the
24 record. Please proceed, counsel.

1 BY MR. MANDELL:

2 Q. Dr. Goodman, when we left off, I
3 think I had asked you this question. I just want
4 to see if I can get the right answer to it.

5 When you have testified in asbestos
6 cases in the past, you have testified that there
7 was a cause other than asbestos to have caused the
8 disease in the case that you were dealing with;
9 true?

10 A. When that was true, yes.

11 Q. Okay. You have done that in the
12 past, yes?

13 A. Yes.

14 Q. And is it true that the law firm
15 that Evan Nelson worked at, Tucker and Ellis, paid
16 you into the hundreds of thousands of dollars to
17 write these articles dealing with asbestos-related
18 issues?

19 A. I don't remember what the total
20 billings were.

21 Q. Any reason to dispute that that is
22 the magnitude of what we're talking about?

23 A. No reason to confirm or dispute.

24 Q. Okay. Oh, I forgot to ask you this

1 question.

2 Do you have an opinion on the safe
3 level of lead? Do you have an opinion as to what
4 that safe level is?

5 MS. JOHNSON: Objection to
6 form.

7 THE WITNESS: I have an
8 opinion that one lead molecule is not
9 going to have any impact on health.
10 Where the exact threshold is I can't say.

11 BY MR. MANDELL:

12 Q. Fine. The article that Evan Nelson
13 had asked you about trying to write that you
14 ultimately tried to publish was entitled
15 "Cigarette Smoking May Increase Mesothelioma
16 Risk"; true?

17 A. It's possible. I can't remember the
18 exact title.

19 Q. Does that sound about right to you?

20 A. Probably something similar, if not
21 that.

22 Q. Okay. And in -- you wrote this
23 article at the request of Evan Nelson; true?

24 A. Yes.

1 Q. And you were paid to do it; true?

2 A. Gradient was paid for our time to
3 write the research and write the article.

4 Q. And you knew when you were writing
5 this article for Evan Nelson that Evan Nelson and
6 his firm were wanting scientific literature to
7 support a claim that smoking can cause
8 mesothelioma; fair?

9 A. I can confirm that Evan thought that
10 that was the case, and so he asked us as
11 scientists to look into it.

12 Q. Right. He wanted to see if
13 you-all -- strike that.

14 He wanted to see if you-all would
15 support that argument because it might be
16 beneficial to him; true?

17 MS. JOHNSON: Objection.

18 Form.

19 THE WITNESS: He just asked
20 us to look into the science to see if it
21 supported it.

22 BY MR. MANDELL:

23 Q. Did you have any belief other than
24 that it would have been beneficial to him?

1 A. Again, I mean, this is sort of
2 outside my expertise as a scientist. I was asked
3 to look into the scientific question.

4 Q. But you've done asbestos defense
5 work for years; true?

6 A. Yes.

7 Q. You know the issues in the cases
8 generally; right?

9 A. Yes.

10 MS. JOHNSON: Objection.

11 BY MR. MANDELL:

12 Q. Would you think that it would have
13 been beneficial to an asbestos defense lawyer to
14 have an article saying that smoking causes
15 mesothelioma?

16 Do you think generally that that
17 would have been something that you think would
18 have been beneficial to him?

19 A. If it were true and perhaps the
20 plaintiff had smoked and did not have adequate
21 asbestos exposure to cause a health outcome, that
22 would be helpful information to know.

23 Q. During the course of writing this
24 article, you gave Evan Nelson drafts to review;

1 true?

2 A. Out of a courtesy, yes, that is true
3 but --

4 Q. He sent you articles that he thought
5 you-all might want to put into the article; true?

6 MS. JOHNSON: Objection to
7 form.

8 THE WITNESS: While it is true
9 he sent us articles, we wrote the paper.
10 The paper would have come out the same
11 whether or not he sent those articles
12 because his opinion did not play a role
13 in our evaluation.

14 BY MR. MANDELL:

15 Q. Right. Why did you submit the study
16 for publication?

17 A. We thought it was an interesting
18 hypothesis, but if you actually read a draft of
19 it, you can see that our ultimate conclusion was
20 that there wasn't enough evidence to really draw a
21 conclusion either way. Or if smoking did cause
22 mesothelioma, it would be so rare, you wouldn't be
23 able to see it in any of these studies.

24 Q. Is that -- strike that.

1 Are you saying that now because you
2 think that the scientific literature is so against
3 that proposition that that makes the article more
4 reasonable to have been published?

5 A. No.

6 Q. Okay. Is that your memory of what
7 the article said?

8 A. My memory of the article -- and,
9 again, I don't remember all the details, but I do
10 remember that there really wasn't a lot of studies
11 on it. And I know epidemiology studies did not
12 find an association, and so we concluded that an
13 epidemiology study would have to be so big to see
14 it because if there was an association, it would
15 be very small.

16 Q. Would it surprise you if the
17 abstract of your article said the following:

18 "Based on data that support the
19 presence of radionuclides" -- and I might be
20 mispronouncing -- "but radionuclides in tobacco,
21 the likelihood that smoke constitutes -- sorry,
22 strike that -- the likelihood that smoke
23 constituents can enter the pleura and several
24 plausible mechanisms of action, including

1 inhibition of the P9 tumor suppressor protein,
2 smoking should be considered a risk factor for
3 mesothelioma, particularly in individuals not
4 exposed to asbestos."

5 A. I can't remember that in the
6 abstract, but I can tell you, I mean, I wouldn't
7 just look at the abstract alone. I would look at
8 the whole paper because I am certain that our
9 conclusions were that the evidence just wasn't
10 sufficient to support it as a cause.

11 Q. Why do you say that?

12 A. Why? Because I remember that the
13 epidemiology studies did not find any
14 associations, and there wasn't very many animal
15 studies. So it sounds like that statement even is
16 just saying there is a possible hypothesized
17 mechanism, but we're not saying -- but that
18 doesn't mean that just because there's a mechanism
19 that it actually can happen.

20 Q. So would it surprise you if the
21 Conclusions section of that article that you wrote
22 states the following:

23 Based on biologic plausibility --
24 strike that.

1 "Exposure to specific types of
2 asbestos fibers at sufficient levels represent the
3 most common risk factor for mesothelioma, but
4 there are other exposures independent of asbestos
5 that are also -- also causal. Based on biologic
6 plausibility, constituents of cigarette smoke,
7 including radionuclides emitting ionizing
8 radiation, likely fall into this category."

9 Would that surprise you?

10 A. Well, I think what that is clearly
11 saying is, it's only based on a hypothesizing
12 mechanism. It's not based on either epidemiology
13 or animal evidence.

14 Q. Is the word "hypothesis" or any
15 derivation of that word in the two sentences that
16 I just read?

17 A. In the two sentences you read, you
18 only mentioned mechanistic evidence and hypotheses
19 based on mechanism. You didn't mention anything
20 about animal bioassays or epidemiology studies.

21 Q. Did the word "hypothesis" or any
22 derivation of that word, was that mentioned in the
23 two sentences that I just read?

24 A. You'd have to read them again.

1 Q. Is it your understanding that
2 anybody reading this article would have come away
3 with the conclusion that you-all thought that
4 smoking didn't actually have enough evidence to
5 cause mesothelioma?

6 A. Sorry. I can't remember. Please
7 repeat that or could you read it back to me.

8 MR. MANDELL: Sure.

9 Can you read it back, please.

10 (The reporter read the record
11 on page 76 lines 1-5.)

12 THE WITNESS: I think if
13 people read the paper from beginning to
14 end, they would walk away with the idea
15 that the evidence wasn't sufficient to
16 support that hypothesis.

17 BY MR. MANDELL:

18 Q. So the statements that I just read,
19 if in fact they came from the article that you
20 wrote, would be untrue and shouldn't have been
21 submitted; is that fair?

22 A. No.

23 Q. Okay. Any idea what the reviewers
24 of the article found in terms of what you were

1 trying to put forth with that proposition in the
2 article?

3 A. I have a vague recollection.

4 Q. Yeah. You have been asked about it
5 in deposition before; is that true?

6 A. Yes.

7 Q. Okay. And isn't it true that the
8 reviewers of the publication believed that you
9 were trying to put forth a proposition that
10 smoking causes mesothelioma?

11 A. I can't remember the details.

12 Q. Okay. Well, would it be -- strike
13 that.

14 Do you have a memory as to whether
15 or not in the reviewers for this article that you
16 submitted that was rejected called your article
17 having significant limitations or a flawed --
18 and/or a flawed design?

19 A. I don't.

20 Q. Do you remember that?

21 A. I don't remember that.

22 Q. Do you have a memory of whether or
23 not these reviewers stated amongst the following:

24 "I recommend that this paper be

1 rejected for publication. First of all, it is an
2 opinion piece and not a scientific article in the
3 usual sense. Second, it is full of statements
4 that are not supported by the published
5 literature. Two of the unsupported statements
6 are: (1) Ionizing radiation which has been
7 associated with a mesothelioma in a number of
8 epidemiologic studies. Not true. An association
9 between -- number 2: An association between
10 smoking and mesothelioma has been consistently
11 noted in epidemiologic studies conducted to date
12 most likely because -- excuse me.

13 "Number 2: An association between
14 smoking and mesothelioma has not been consistently
15 noted in the epidemiologic studies conducted to
16 date, most likely because they have all been
17 statistically under power to assess this. Not
18 true."

19 Do you remember that, those
20 comments?

21 A. Yes, and I disagree with the
22 reviewer.

23 Q. Okay. Do you remember comments to
24 this effect:

1 This paper represents -- strike
2 that.

3 "This paper presents what I consider
4 a highly biased review of the evidence that
5 tobacco exposure is associated with an increased
6 risk of mesothelioma. I strongly suspect the
7 authors must work with someone with a strong
8 financial interest in this subject. I recommend
9 rejecting this paper."

10 Do you remember that comment?

11 A. Vaguely.

12 Q. Okay. And turns out that they were
13 right; is that true?

14 A. Right about what?

15 Q. That you -- that the author had --
16 strike that.

17 That the author worked with someone
18 with a strong financial interest in this subject?

19 A. I think the reviewer essentially
20 took our conclusions further than we took them and
21 then -- and then wrote that review based on that.
22 And the fact that, as I said, it doesn't matter
23 who funds our work, we use objective, transparent,
24 systematic methods to do our work.

1 Q. So when I had asked you before if
2 you would have thought that somebody reading this
3 article would have come away with the conclusion
4 that you believed that smoking caused
5 mesothelioma, would you agree with me that at
6 least the reviewer that I just mentioned did?

7 A. I can't -- I can't say what they --
8 they walked away with. I mean, they just wrote a
9 couple of sentences, or I don't know why they
10 would have.

11 Q. Okay. Well, when -- strike that.
12 Assuming the reviewer stated that
13 "this paper presents what I consider a highly
14 biased view review of the evidence that tobacco
15 exposure is associated with an increased risk of
16 mesothelioma," do you take that to mean anything
17 other than that they thought that you were saying
18 that smoking causes meso?

19 A. I don't know what they thought, and
20 I don't know why they would write that when we
21 clearly show that epidemiology and toxicology
22 studies don't support that.

23 Q. But if what I read from your article
24 is true, that's not true; correct?

1 MS. JOHNSON: Objection to
2 form.

3 THE WITNESS: What?

4 BY MR. MANDELL:

5 Q. If in your article it states:
6 "Exposure to specific types of
7 asbestos fibers at sufficient levels represent the
8 most common risk factor for mesothelioma, but
9 there are other exposures independent of asbestos
10 that are also causal. Based on biologic
11 plausibility, constituents of cigarette smoke,
12 including radionuclides emitting ionizing
13 radiation, likely fall into this category?"

14 If that is in your article that you
15 submitted your statement that you just made
16 wouldn't have been true; correct?

17 A. What we're saying is that it's
18 absolutely true that ionizing radiation can cause
19 mesothelioma and that's -- I don't know why that
20 reviewer said that isn't true. That's widely
21 known.

22 And we were trying to make the point
23 that if you have radioactive substances in tobacco
24 smoke, theoretically, those -- and that those

1 substances could get in the -- the pleura,
2 theoretically, it could cause mesothelioma. We
3 were making the point about essentially only
4 biological plausibility, not about whether or not
5 it was actually causal.

6 Q. The sentence that I just read you
7 don't think could be reasonably interpreted to
8 mean that you-all thought that smoking caused
9 mesothelioma?

10 A. I think that would be a big stretch
11 from that sentence.

12 Q. Okay. When did you find out about
13 the reviews on that article that was submitted
14 that got rejected?

15 A. Probably within a few months of
16 submission.

17 Q. Okay. Did you ever do anything to
18 try to correct that record?

19 A. No.

20 Q. Did you ever call anybody to say
21 these -- these statements were not true?

22 A. No.

23 Q. Did you ever call the journal and
24 say, "These statements about me are not true"?

1 A. No.

2 Q. Ever write a letter to them?

3 A. No.

4 Q. Ever publicly say to anybody that
5 any of that that were in the reviews that you got
6 that you knew were negative and questioning your
7 objectivity as a scientist were not true?

8 A. No.

9 Q. In fact, you now believe that
10 cigarettes do not cause mesothelioma; true?

11 A. Yes.

12 Q. Right.

13 Do you know what happened to Evan
14 Nelson after this whole issue came about where he
15 asked you guys to write some letters or
16 publications and paid you for them? Do you know
17 what happened to him?

18 A. No.

19 Q. You don't know that he was fired
20 from his job?

21 A. Actually, I do remember hearing
22 that, but I don't know the whole reason why or any
23 reason why.

24 Q. Well, that was going to be my next

1 question.

2 Do you know why?

3 A. No.

4 Q. You had sent -- I think I might have
5 asked you this before, but if I didn't, let me
6 just ask it one more time.

7 You had sent Evan Nelson a copy of
8 that article before you submitted for his comment;
9 true?

10 A. As I said before, I sent it to him
11 as a courtesy, but in the end his comments didn't
12 really have any influence on what was in the
13 article. It was Peter's and my final call as to
14 what went in the article.

15 Q. Is it, in fact, true that what
16 happened during that time was: You sent Evan
17 Nelson drafts of this article to review and he
18 sent you literature that he thought should have
19 been in the article; true?

20 MS. JOHNSON: Object to form.

21 THE WITNESS: I recall Evan
22 Nelson sending us e-mails with his
23 nonscientific interpretation of what the
24 literature said, and when he was wrong,

1 it didn't make it into the article.

2 BY MR. MANDELL:

3 Q. Do you know if any of the articles
4 that he did send you did make their way in there?

5 A. I think if he was right about
6 something, we weren't going to exclude it just
7 because he said it.

8 Q. Have you ever had other articles
9 that you've submitted for publication be rejected?

10 A. Yes.

11 Q. How many?

12 A. A very small portion of all of those
13 that I have submitted.

14 Q. Is there any type of operational
15 definition for that?

16 A. I don't know. One percent maybe,
17 two percent.

18 Q. Do you think it's as many as 10
19 articles that have been rejected?

20 A. I don't think so.

21 Q. Any other law firms published --
22 strike that.

23 Any other law firms funded any of
24 your work in terms of not as an expert witness?

1 I'm saying like your publications.

2 A. Not that I can recall as I sit here.

3 Q. Has DOJ ever funded any of your
4 research or articles or publications?

5 A. No.

6 Q. Do you know anything about the
7 Center for Public Integrity, that article -- that
8 article that we were talking about the "rented
9 white coats"? Do you know anything about the
10 actual entity?

11 A. Only that they're not very
12 objective. (Laugh).

13 Q. Do you know if the Center for Public
14 Integrity article that we were just referencing
15 has been cited positively by any entities that you
16 might find to be objective?

17 MS. JOHNSON: Objection to
18 form.

19 THE WITNESS: I am not aware
20 of it.

21 MR. MANDELL: I forget what
22 the number is.

23 THE COURT REPORTER: 10.

24 (Document marked for

1 identification as Exhibit 10.)

2 BY MR. MANDELL:

3 Q. Have you ever seen this document
4 before, Exhibit Number 10?

5 A. I do not recall ever seeing this
6 particular document.

7 Q. Okay. Are you aware of the general
8 content of the document?

9 A. I can read the title.

10 Q. That was a poor question on my part.
11 You've looked at the title. You can
12 see it.

13 It says "INEP Position Statement
14 Series, Conflict-of-Interest and Disclosure in
15 Epidemiology"; true?

16 A. Yes.

17 Q. It's dated December 24, 2020?

18 A. Yes.

19 Q. Are you aware that the INEP had put
20 out a position statement series on this issue?

21 A. I don't think so.

22 Q. Okay. So could you do me a favor,
23 please, and just turn to page 6.

24 There's a whole bunch of authors

1 listed on this article; true?

2 A. Yes.

3 Q. Do you recognize any of them?

4 A. I recognize Jennifer Sass.

5 Q. Okay. And how?

6 A. Jennifer Sass is often making public
7 comments about chemicals.

8 Q. When you say that, do you view those
9 comments as positive or negative?

10 A. I generally disagree with the
11 comments that Jennifer Sass makes --

12 Q. Okay.

13 A. -- or has made. I haven't seen her
14 name in years, actually.

15 Q. Anybody else on this list that you
16 recognize?

17 A. (Reviews document.)

18 Ellen Silbergeld is a professor at
19 either Johns Hopkins or University of Maryland.

20 Q. Okay. Anybody else?

21 A. I don't think so.

22 Q. All right. So there is -- 1, 2, 3,
23 4, 5, 6, 7, 8, 9 -- 10 authors and coauthors; is
24 that true?

1 A. Yes.

2 I think I might recognize Jane
3 Caldwell's name as well, but I don't -- if she is
4 the same person that wrote about MTBE, I recognize
5 her name.

6 Q. This is Jane Caldwell from the
7 USEPA, United States Environmental Protection
8 Agency, retired from Durham, North Carolina?

9 A. Yes. There's, I believe, someone
10 named Caldwell that wrote about MTBE, and it might
11 be her.

12 Q. Okay. And there's a number of peer
13 reviewers on this; true?

14 A. Yes.

15 Q. There's -- 1, 2, 3, 4, 5 -- 6 of
16 them; fair?

17 A. Yes.

18 Q. Okay. And turn to the next page, if
19 you don't mind, please.

20 By the way, are you familiar with
21 the International Network for Epidemiology and
22 Policy? Do you know the group?

23 A. A bit.

24 Q. Okay. On page 7, do you see there's

1 a long list of what they say are INEP's 24 member
2 organizations?

3 A. Yes.

4 Q. Do you know that these are the
5 member organizations that, like, as a general
6 principle there's this many members from across
7 the world?

8 A. I knew there were several, and I was
9 aware of the American College of Epidemiology.

10 Q. All right. So you were aware that
11 the American College of Epidemiology is a member
12 of the INEP; true?

13 A. Yes.

14 Q. All right. And if you could turn to
15 page 21.

16 Do you see number 5 says:

17 Recent -- "Recent
18 Epidemiology-Specific Examples of COI and
19 Disclosure Issues;" right?

20 A. Yes.

21 Q. And COI is conflict of interest;
22 right?

23 A. Correct.

24 Q. And the paragraph says:

1 "There are several initiatives that
2 are more specific to epidemiology, published since
3 2016, and used by INEP to support its Position
4 Statement. They include analyses developed by two
5 organizations [i.e., The Center for Public
6 Integrity and the Collegium Ramazzini (an
7 international public health organization based in
8 Capri, Italy)], one epidemiologist as a
9 commentary, and responses to that commentary by
10 several INEP Position Statement authors."

11 Fair? Is that what that says?

12 A. That is what that says.

13 Q. And then it says:

14 "In addition, more recent examples
15 of COI issues in public health protection are
16 included."

17 Could you read the number 1 example
18 letter A under this recent epidemiology-specific
19 examples?

20 A. This (laugh) -- this document cites
21 to the CPI article. So I don't know why because,
22 as I said, nothing in that article is based on the
23 truth here. And I don't think I was exposed or
24 anything like that. I think the article was just

1 an ad hominem attack of me.

2 Q. Okay. Well, let's go through it
3 line by line, if you don't mind.

4 The title says "2016 CPI COI Exposé:
5 'Science for Sale' on Scientific Billboards,
6 Councils, and Review Panels."

7 That's the title.

8 I read that correctly?

9 MS. JOHNSON: Objection.

10 Form.

11 THE WITNESS: You read that
12 correctly.

13 BY MR. MANDELL:

14 Q. All right. The first sentence says:
15 "After several years of
16 investigation by David Heath, the CPI published an
17 exposé in 2016 about COI and disclosure in a
18 series of articles entitled 'Science for Sale'
19 (i.e., 'Meet the 'rented white coats' who defend
20 toxic chemicals' accessible here)."

21 The next sentence says:

22 "The exposé included a video link to
23 Dr. Julie Goodman giving expert testimony that
24 cited junk science."

1 True?

2 A. You read that correctly, but that is
3 completely untrue in terms of "junk science."

4 Q. The next sentence says:

5 "As a member of the American College
6 of Epidemiology (ACE) Board, she attempted to
7 obstruct the ACE endorsement of the 2012 IJPC-SE
8 Position Statement on Asbestos. CPI exposed
9 Dr. Goodman's COI -- conflict of interest -- as
10 financially benefiting from vested interests; her
11 employer (Gradient) had been associated with a
12 number of scientists employed to manufacture doubt
13 and foment uncertainty about scientific evidence."

14 Do you agree with that?

15 A. Nope.

16 Q. Any understanding as to why all of
17 the people on page 6 would have signed off on this
18 if that wasn't true?

19 A. Because -- and this was my issue
20 with that asbestos statement -- is that the people
21 writing and signing off on the statement do not
22 actually know all of the facts and, in fact, CPI
23 did not expose my conflict of interest.

24 I wrote an e-mail that is actually

1 linked in that article to the ACE board saying I
2 do defense expert work for asbestos. There was no
3 hiding that.

4 And my issue was not in supporting
5 the statement. My issue was that ACE members as
6 an organization should not be supporting
7 statements unless everybody is knowledgeable about
8 the state of the science on that statement.

9 So that is what I did. That was
10 very clear from the links to that CPI article and,
11 again, whoever signed off on this did not do their
12 research to see whether or not this was true.

13 That's all I can say because that is
14 factually incorrect.

15 Q. So skipping down a couple other
16 sentences, it says:

17 "Having a range of scientific
18 viewpoints considered is important for discerning
19 the state of the science of a particular issue.
20 However, INEP considers the CPI example as
21 highlighting the need to protect professional
22 Boards, Councils, and Review Panels from
23 infiltration by people with conflict of interest
24 issues, from people who may instead act as

1 'industrial apologists' and deter the advancement
2 of scientific knowledge. This is also an example
3 of the importance of supporting 'watchdog'
4 activities."

5 First, did I read that correctly?

6 A. You read it correctly.

7 Q. And you're saying you disagree with
8 that; true?

9 A. I think this whole thing is based on
10 essentially a lie, that what I said was that not
11 anyone should take my position, but that people
12 needed to become familiar with the science before
13 taking a position. So to imply anything else is
14 not true.

15 Q. Any reason that you can think of, as
16 you sit here today, why Colin Soskolne, the
17 professor emeritus from the University of Alberta,
18 Canada, who is the author of this article, would
19 say this about you if it wasn't true?

20 A. Because whoever this person is
21 didn't actually check to see if it was true or
22 not. They cut and pasted from an article without
23 verifying whether or not it was true.

24 Q. So he's incorrect; true?

1 A. That is true.

2 Q. How about Jane Caldwell, USEPA,
3 retired from Durham, North Carolina? Any reason,
4 as you sit here today, why Jane Caldwell would
5 have agreed to sign off on this if it wasn't true?

6 A. Because she didn't do her research
7 to determine whether or not it was true.

8 Q. How about Leslie London from the
9 professor -- professor from the School of Public
10 Health and Medicine from the University of
11 Capetown?

12 A. The answer is the same.

13 Q. The same for every single person on
14 this list?

15 A. Yes.

16 Q. Okay. Do you know whether or not
17 any of the authors of this article talked about
18 these issues outside of this article?

19 Do you understand my question?

20 A. No.

21 Q. Okay. That was a poorly phrased
22 question.

23 Do you know if any of the authors of
24 the article that we were just looking at publicly

1 stated those facts other than in the article?

2 A. Do I know whether any of these
3 authors said anything in a different forum?

4 Q. Yeah. Like a different forum, yes,
5 or different location, a different place.

6 A. I'm not aware of it.

7 MR. MANDELL: Okay. I'm going
8 to mark another exhibit. Number 11.

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

11 THE WITNESS:

12 (Reviews document.)

13 BY MR. MANDELL:

14 Q. Do you see -- do you have it, by the
15 way?

16 A. I do.

17 Q. It's marked as Exhibit 11.

18 If you could turn for me, please, to
19 there's -- I think it's page 9.

20 By the way, the first page of the
21 document says "INEP's Position Statement on
22 Conflict-of-Interest and Disclosure in
23 Epidemiology"; true?

24 A. Yes.

1 Q. And it lists two of the authors that
2 we just talked about, one of which that you might
3 have known, Jane Caldwell?

4 A. Yeah. To be clear, I didn't know
5 her. I just meant I recognized her name.

6 Q. You recognized her name; right?

7 A. Yes.

8 Q. All right. And this looks to be a
9 scientific response to network webinar from the
10 University of California, San Francisco, Program
11 on Reproductive Health and the Environment from
12 February 25, 2021; is that true?

13 A. Yes, it looks like it's a webinar on
14 this document.

15 Q. Right.

16 And so if you turn to page 9, letter
17 A says:

18 "2016 Center for Public Integrity
19 COI Exposé: 'Science for Sale' on Scientific
20 Billboards, Councils, and Review Panels."

21 That was the title of the article;
22 right?

23 A. Yes.

24 Q. And then it says:

1 "David Heath, investigative
2 journalist with the CPI, published a series of
3 articles entitled 'Meet the 'rented white coats'
4 who defend toxic chemicals.' They exposed Julie
5 Goodman giving expert testimony, citing junk
6 science, and financially benefiting from vested
7 interests of her employer, Gradient."

8 And then it says:

9 "Gradient has long been associated
10 with scientists employed to manufacture doubt and
11 foment uncertainty about scientific evidence."

12 Do you see that?

13 A. You read that correctly.

14 Q. Were you aware of the fact that
15 there were people going around the country and
16 talking about these issues?

17 A. No.

18 Q. This is the first time you're
19 hearing of it?

20 A. Yes.

21 Q. You disagree with that, the
22 sentiment of what's in their statements; is that
23 fair?

24 A. Again, the fact that a group of

1 people read an article, didn't confirm whether it
2 was true or not and then repeated it doesn't
3 suddenly make it true. It is not true.

4 Q. Did you testify before the -- a
5 council in Maine in 2013 regarding legislation
6 that would restrict bisphenol-A (BPA) in infant
7 formula and baby foods?

8 A. I have testified in Maine. I don't
9 remember the year.

10 MR. MANDELL: Okay. I'm going
11 to mark the next exhibit, Exhibit 12.

12 (Document marked for
13 identification as Exhibit 12.)

14 THE WITNESS: Thank you.

15 BY MR. MANDELL:

16 Q. Do you see at the top of this
17 document it says "Julie Goodman - Advocate for
18 Industry Track Record of Claiming that Toxic
19 Chemicals Are Safe"?

20 A. I -- you have read that correctly.

21 Q. Okay. And under the first
22 paragraph, do you see where it says:

23 "Julie Goodman from Gradient
24 consulting came to Maine on April 10, 2013 to

1 testify against legislation that would restrict
2 bisphenol-A (BPA) in infant formula and baby food
3 packaging"?

4 A. Yes.

5 Q. Do you know the National Resource
6 Council of Maine?

7 A. I do not.

8 Q. Okay. Well, this says the
9 national -- NR -- NRCM is the National Resource
10 Council of Maine, as I understand it, and it says:

11 "NRCM had never seen Goodman before,
12 so we did a bit of research and quickly discovered
13 that she is one of the 'go to' people that the oil
14 and chemical industries hire when they want
15 someone to put together a study showing that a
16 particular chemical might not be as cancerous or
17 harmful to public health as other scientists
18 claim."

19 Do you see that? Did I read that
20 correctly?

21 A. You read it correctly.

22 Q. I'm assuming --

23 A. I disagree with the sentiment.

24 Q. I'm assuming you disagree with that?

1 A. I do.

2 Q. And assuming that this is true that
3 the National Resource Council of Maine said this
4 and put this out, any reason why the National
5 Resource Council of Maine would have said that
6 about you if it wasn't true?

7 A. I can't speak to their motives.

8 MR. MANDELL: I'm going to
9 mark the next article.

10 (Document marked for
11 identification as Exhibit 13.)

12 MR. MANDELL: This is 13.

13 THE WITNESS: Thank you.

14 BY MR. MANDELL:

15 Q. Have you ever seen this article?

16 A. Yes.

17 Q. And what is this?

18 A. This is an article that an advocate
19 journalist wrote for the New York Times about gas
20 stoves.

21 Q. Okay. And when you say that it was
22 an advocate for the New York Times, why do you say
23 that?

24 A. Because -- well, for two reasons.

1 It says at the end of the article that the
2 reporter reports "widely on money, influence and
3 misinformation in climate policy."

4 So it is her goal to put forth that
5 position, number one; and, number two, I spoke
6 with her and when I asked if she was interested in
7 the science, she was not. She had no interest in
8 understanding what the science said.

9 Q. What -- what generally is your
10 understanding of what this article was intending
11 to put forth?

12 A. She is trying to say that the
13 position that gas stoves -- the use of gas stoves
14 are not associated with asthma in children, that
15 that position is not supported by the science.

16 Q. And you disagree with that?

17 A. Not only me, the World Health
18 Organization disagrees with that.

19 Q. Do you know if there is any people
20 that believe what she believes meaning that
21 disagree with you?

22 A. She spoke with a few people in this
23 article that disagree.

24 Q. Okay. And I want to ask you a

1 specific question about this article.

2 Do you see at the bottom of the
3 first page, it says:

4 "In recent months, Dr. Goodman has
5 also worked with the American Gas Association, the
6 industry's main lobby group, to help it counter
7 health concerns linked to gas."

8 Then it says:

9 "In an interview, Dr. Goodman said
10 she was transparent about the approach and
11 processes she followed in her research, including
12 disclosing the funding she receives. She said
13 that it had been an oversight not to have
14 mentioned that she had been paid to testify at the
15 Multnomah hearing on behalf of the gas utility,
16 and she said that the opinions she expressed
17 represented her own, not necessarily the
18 utility's."

19 Did I read that correctly?

20 A. You read it, but I think for context
21 it's important to realize that I wrote a letter
22 and -- to the board and the letter said where the
23 funding was coming from.

24 Q. Well, tell me about that.

1 So when you applied for hearings,
2 tell me the process.

3 When you say you wrote a letter,
4 what do you mean by that?

5 A. So I had a total of three minutes to
6 testify to this board and -- which is not a lot of
7 time to explain the science behind gas stoves and
8 asthma and epidemiology on that, and because I had
9 so little time, I also wrote a letter that went in
10 with my testimony. And the first sentence of that
11 letter says where I received funding from.

12 So, yes, it was an oversight to not
13 say it when I spoke, but I did know for a fact
14 that that information was in the letter that I
15 gave the board.

16 Q. You're sure about that?

17 A. Yes.

18 Q. Okay. Would it surprise you to know
19 that our office sent a FOIA request to the
20 Multnomah County board that you were testifying
21 before, and they said that you never submitted any
22 letter or article and that you requested only to
23 have oral testimony?

24 Would that surprise you?

1 A. Yes, and I'm happy to provide you
2 with the letter.

3 Q. Okay. So if there is a document
4 that says that in 2022 requester information, name
5 Dr. Julie Goodman, e-mail JGoodman@gradient.
6 Testimony request: How would you like to submit
7 your testimony? And it says "oral testimony
8 only," you would dispute that?

9 MS. JOHNSON: Objection.

10 Form.

11 THE WITNESS: So I don't
12 remember or I did not request the
13 testimony, the client did, but I can tell
14 you that I -- I sent a letter that went
15 with the testimony.

16 And so I don't know -- I have
17 no idea about that process. I just know
18 that while I was preparing the testimony,
19 I was preparing a letter to be sent in
20 with the testimony, and that letter did
21 go in.

22 BY MR. MANDELL:

23 Q. And so if there was a document that
24 indicated that "There are no records responsive to

1 your request. As no written testimony was
2 submitted, I am attaching a copy of her testimony
3 form, which speakers are required to fill out to
4 join the queue," you would disagree with that;
5 true?

6 A. True.

7 Q. Is part of the reason why you would
8 disagree with that because it was necessary to
9 submit written -- some type of disclosure that you
10 were being paid for the comments that you were
11 giving?

12 A. No. It was always my intention to
13 submit something written with the oral comments.

14 Q. Right.

15 My -- I think my question was a
16 little different, which is: Is it your testimony
17 that part of the reason why you believe you needed
18 to send something written is because you needed to
19 disclose that funding one way or the other; right?

20 A. It was always my intention to
21 disclose that funding, yeah. So if it wasn't
22 disclosed in the oral comments, it would be
23 disclosed in the written comments.

24 Q. But in order to be an objective

1 scientist, you needed to disclose that funding;
2 true?

3 MS. JOHNSON: Objection.
4 Form.

5 THE WITNESS: I don't think
6 it happened to be objective. I think to
7 be transparent, it's important to say
8 who -- where the funding came from and so
9 that funding was in that letter.

10 BY MR. MANDELL:

11 Q. So in the article that we were just
12 looking at, at the very top, the New York Times
13 article, it says:

14 "In an interview, Dr. Goodman said
15 she was transparent about the approach and
16 processes she followed in her research, including
17 disclosing the funding she receives."

18 It says:

19 "She said that it had been an
20 oversight not to have mentioned that she had been
21 paid to testify at the Multnoah -- Multnomah
22 hearing on behalf of the gas utility, and she said
23 that the opinions she expressed represent her own,
24 not necessarily the utility's."

1 True?

2 A. Yes.

3 Q. So you had an interview with the
4 author of this article?

5 A. Yes.

6 Q. And did you tell the author of the
7 article that you had submitted written testimony?

8 A. Yes.

9 Q. And she just forgot to mention that
10 in this article; is that what you're saying?

11 A. I don't know if she forgot or chose
12 not to.

13 Q. Regardless of the intention, it's
14 not in the article; true?

15 A. That is true.

16 Q. Okay. On page 7 of the article, it
17 says towards the bottom of the -- it's three
18 paragraphs up, it says "Gradient declined to
19 comment."

20 Any idea what that's about?

21 MS. JOHNSON: Objection.

22 Foundation.

23 BY MR. MANDELL:

24 Q. Let me rephrase the question.

1 Do you know what is meant by
2 "Gradient declined to comment" in the bottom
3 two-thirds of this page?

4 A. I believe she's referring to the
5 fact that I chose not to comment on these
6 scientists who were making these statements about
7 me.

8 Q. Okay. In the CPI article -- you
9 still have that one?

10 MS. JOHNSON: What exhibit is
11 that?

12 MR. MANDELL: It's Exhibit 9.

13 MS. JOHNSON: Thank you.

14 MR. MANDELL: Sure.

15 BY MR. MANDELL:

16 Q. On page -- sorry. One second.
17 Let me try it this way.

18 Were you involved in a lawsuit that
19 dealt with tobacco issues in the State of
20 Massachusetts?

21 MS. JOHNSON: Objection.
22 Foundation.

23 BY MR. MANDELL:

24 Q. Oh, I was in the wrong article. I'm

1 so sorry.

2 Can you please turn to Exhibit 13,
3 the New York Times article.

4 Do you have it?

5 A. Yes.

6 Q. It's on page 6.

7 At the bottom, the last paragraph,
8 it says:

9 "She has also helped develop expert
10 testimony for Philip Morris in a class-action
11 lawsuit that went to trial in 2015, portraying the
12 tobacco giant's best-selling Marlboro Lights
13 cigarettes as being safer for smokers."

14 Do you see that?

15 A. I see that.

16 MS. JOHNSON: Objection.

17 Form.

18 BY MR. MANDELL:

19 Q. Were you involved in that case?

20 A. I did a few statistical analyses for
21 Peter Valberg, but I did not help develop any
22 testimony.

23 Q. Okay. And it says:

24 "In a decision for the plaintiffs,

1 Judge Edward Leibensperger of Massachusetts
2 Superior Court said Gradient's analysis 'was shown
3 to be inconsistent and contrary to the consensus
4 of the scientific community.'"

5 Do you see that?

6 A. I see that.

7 Q. Did you know that that court said
8 that?

9 A. I have obviously seen this article.
10 I don't know. I don't know any details about the
11 case. I know what it was about in terms of it was
12 whether -- it was -- it was about the degree to
13 which people compensated by inhaling more deeply
14 or smoking more cigarettes when they were smoking
15 light versus regular cigarettes. That's what the
16 case was about. I'm not quite sure what the
17 ruling was or what the judge was talking to in
18 this particular case.

19 Q. So have you -- you've never seen the
20 opinion or anything like that?

21 A. I have not.

22 Q. Okay. Were you -- prior to reading
23 the New York Times article, were you aware of that
24 opinion?

1 A. I'm not sure.

2 Q. Okay. What is the business of
3 Gradient?

4 A. Gradient is a risk sciences and
5 engineering consulting firm.

6 Q. Does Gradient do any actual
7 scientific testing?

8 A. What do you mean by that?

9 Q. Do you do any lab studies?

10 A. Sometimes we do.

11 Q. Okay. How many lab studies have you
12 done in the last 10 years?

13 A. I know I commissioned a couple of
14 lab studies, but I can't remember when they were.
15 I'm not sure they were in the last 10 years.

16 Q. Do you remember any lab studies that
17 you've done in the last 10 years?

18 A. No.

19 Q. Any clin -- strike that.
20 Have you -- you're not a medical
21 doctor; true?

22 A. That is true.

23 Q. Gradient does not have any medical
24 doctors on its employee payroll; true?

1 A. That is true.

2 Q. How many employees are employed at
3 the business of Gradient?

4 A. I believe it's somewhere around 150.

5 Q. How many typically are assigned to
6 individual projects, like the project we're here
7 today to talk about?

8 A. It really depends on the project.

9 Q. Do you know how many were assigned
10 to this project?

11 A. It was a lot. (Laugh).

12 Q. Does the number 60 sound about
13 right?

14 A. Over the last three years? It could
15 be.

16 Q. So there were 60 people from the
17 business of Gradient that worked on this project
18 that culminated in that stack of reports that
19 we've marked as Exhibits 1 to 5 in this case;
20 true?

21 A. Again, I would have to look to see,
22 but we could verify that by looking at the
23 invoices and counting up all the people.

24 Q. Sure.

1 Does that number sound drastically
2 off to you?

3 A. Given the scope of this project, no,
4 it does not.

5 Q. Okay. Would you agree that since
6 September of 2022 the business of Gradient has
7 billed the United States Government \$4,321,996.36?

8 A. I don't know the exact amount, but I
9 know this particular project. I don't believe
10 that was that high for this particular project.

11 Q. As part of the \$4,321,996.36, was
12 there any work product given to the United States
13 Government other than those reports?

14 MS. JOHNSON: Objection.

15 THE WITNESS: I'm -- am I
16 allowed to ask you a question?

17 MS. JOHNSON: No.

18 We're coming close to
19 privileged territory --

20 MR. MANDELL: Well --

21 MS. JOHNSON: -- for her
22 reports.

23 MR. SNYDOW: Close but not
24 yet.

1 THE WITNESS: So I'm not sure
2 what's confidential or not.

3 BY MR. MANDELL:

4 Q. Okay. Have you done other work
5 product besides these reports for this case that
6 you have given to the United States?

7 MS. JOHNSON: Objection.

8 Privileged.

9 I'm instructing you not to
10 answer.

11 THE WITNESS: I'm going to
12 take my counsel's advice and not answer.

13 BY MR. MANDELL:

14 Q. Okay. Have you produced any work
15 product that would have formed the basis for your
16 reports, other than what we have sitting there
17 right now?

18 MS. JOHNSON: Objection.

19 Privileged.

20 Instruct you not to answer.

21 THE WITNESS: I'm not going
22 to answer.

23 BY MR. MANDELL:

24 Q. We can -- we'll come back to this.

1 Is it your testimony that you have
2 not seen the invoice that lists 430 --
3 \$4,321,996.36, which was the March 9, 2025
4 invoice?

5 A. My project manager handles all the
6 invoices. So I actually haven't seen any invoices
7 myself.

8 Q. Is it your testimony that you are
9 unaware that Gradient has billed \$4 million-plus
10 on this case?

11 A. I am -- I did not think it was that
12 high, but I would have to look.

13 Q. Dr. Goodman, you are the principal
14 number one on this case; true?

15 A. Yes.

16 Q. They list principals, I guess, at
17 Gradient by number. There's Roman numeral 1, 2,
18 3?

19 A. Yes.

20 Q. And is there anybody higher on this
21 project than you?

22 A. No.

23 Q. And you're telling -- strike that.
24 Your testimony is that you are

1 unaware that the business of Gradient has billed
2 over \$4 million in this case? Is that your
3 testimony?

4 A. I -- I am surprised it's that high.
5 I did not think it was that high, but, again, I am
6 happy to look at the invoices and confirm.

7 Q. Okay. Well, we marked the invoices
8 as an exhibit.

9 If you could turn to Bates number
10 26.

11 MS. JOHNSON: Counsel, do you
12 have copies?

13 MS. PLATT: Do you have
14 copies?

15 MR. MANDELL: They're all
16 right here.

17 BY MR. MANDELL:

18 Q. It says at the bottom
19 GOODMAN_USA_INVOICE? Do you see that?

20 A. (Reviews document.)
21 Yes.

22 Q. They're double-sided, by the way.

23 A. (Reviews document.)

24 Q. Are you at page 26?

1 A. Yes.

2 Q. Do you see how at the bottom of
3 that -- in fact, I'm sorry, if you turn over to
4 the first -- the page before that. It's page 25.

5 It just has the invoice date that
6 says March 9, 2025?

7 A. Yes.

8 Q. And then the next page where we were
9 just looking, page 26 at the bottom says "Billings
10 to Date"?

11 A. Yes.

12 Q. And it says "Totals" down there; is
13 that correct?

14 A. Yes.

15 Q. And the total that's listed under
16 the very right-hand column, when you add up all
17 the labor and the expense, is \$4,321,996.36; true?

18 A. Yes.

19 Q. And do you have any reason -- that
20 would be the total billing for the project; right?

21 A. Yes. For the past three years, yes.

22 Q. Okay. And your testimony is that
23 before I just mentioned that to you right now, you
24 were unaware that it was that high; true?

1 A. Yes.

2 Q. What did you -- what did you think
3 that it was, if you could -- if you could answer
4 that?

5 A. I knew it was in the millions. I
6 just wasn't aware it was that high.

7 Q. And you understand that when
8 Gradient was sending these invoices, the date we
9 were just looking at was March 9th of 2025; right?

10 A. Yes.

11 Q. So that would have been almost two
12 months ago?

13 A. Yes.

14 Q. A month and a half to two months
15 ago?

16 A. (Nods head).

17 Q. Yes?

18 A. Yes.

19 Q. And so you understood and Gradient
20 understood when they were sending that -- that
21 invoice that that wasn't going to be the end of
22 the project; right?

23 A. That is correct.

24 Q. You're -- you're listed on five

1 different expert reports; true?

2 A. Yes.

3 Q. One for each of the five diseases in
4 the first track of diseases in this case; is that
5 true?

6 A. Yes.

7 Q. So you have as an understanding that
8 there is a significant amount of work left to be
9 done; is that fair?

10 A. Yes.

11 Q. Are you aware as to on any
12 particular days what amounts of billing the
13 business of Gradient billed the Department of
14 Justice the United States Government for work on
15 this project?

16 A. So I know there were periods of time
17 where there was a lot of activity, but I -- as I
18 said, I didn't really pay attention to the
19 day-to-day billings.

20 Q. Okay. Would it surprise you to know
21 that there were days in which the business of
22 Gradient billed 47 hours' worth of individual time
23 for work on this project?

24 A. That does not surprise me.

1 Q. Does that happen often at the
2 business of Gradient?

3 A. Well, it just depends on the project
4 and deadlines and things like that.

5 Q. Does the business of Gradient keep
6 any exposure metrics -- excuse me -- expense
7 metrics like billing metrics?

8 A. I don't know what you mean by that.

9 Q. Do you have any metrics that you use
10 with which to bill, meaning that -- that you,
11 like, have goals to meet?

12 A. Are you asking for a particular
13 person or what? I don't -- sorry. I don't
14 understand what you're asking.

15 Q. No, that's fine. That's fine.
16 How about yourself? Do you have any
17 billing guidelines or requirements that you have
18 to meet with the business of Gradient?

19 A. I -- I set those myself what I do.

20 Q. You mean like they're personal
21 goals?

22 A. Meaning they're not just assigned to
23 me and I have to meet them.

24 Q. So let me ask the question a little

1 differently.

2 Does the business of Gradient
3 sent -- set any guidelines in terms of how much
4 you have to bill like in a year or a month or six
5 months, or whatever the time period is?

6 A. Gradient asks us as principals to
7 set -- to set revenue goals.

8 Q. And is there any instruction on
9 that? How does that work? Do you have -- do
10 they -- do they do any education on that or to
11 give you any materials, writings?

12 A. Not that I can think of.

13 Q. So how is it that the business of
14 Gradient imparts to you what is needed to be used
15 in terms of how much you have to bill over a
16 certain time period?

17 A. We get asked at the end of each year
18 to set revenue goals for the following year, and
19 it's my understanding that that information is
20 used to make decisions about hiring and things
21 like that.

22 Q. Do you know what your revenue goals
23 have been for the last several years?

24 A. Not precisely.

1 Q. Do you have a ballpark?

2 A. I want to say 3 or 4 million.

3 Q. Per year?

4 A. Yes.

5 Q. The billing that we just looked at
6 that is Exhibit 6 -- it says Exhibit 6 on there;
7 right?

8 A. Yes.

9 Q. That billing, would that all be
10 assigned to you? Meaning when you have 3 or 4
11 million dollars of required billing per year, does
12 the entirety of that bill -- I understand that
13 it's over a couple of years, but does the entirety
14 of that bill get, you know, allocated to your pot,
15 so to speak?

16 A. It all is allocated toward my
17 revenue goal.

18 Q. Yeah. You're the Principal I in the
19 project. So, therefore, you get credit for all of
20 it; true?

21 A. Yes.

22 Q. Have you done other work for the
23 Department of Justice or the United States
24 Government over the last five years on other

1 cases?

2 A. Yes.

3 Q. How many other cases?

4 A. Two.

5 Q. Which ones?

6 A. I don't know if those are
7 confidential.

8 MS. JOHNSON: You can answer.

9 THE WITNESS: Well, I know one
10 is on Flint.

11 BY MR. MANDELL:

12 Q. Flint Water?

13 A. Yes, and the other one I'm not sure
14 if it's confidential or not. I haven't produced a
15 report or testified.

16 MS. PLATT: Then that would be
17 privileged information.

18 THE WITNESS: Okay.

19 MS. PLATT: Instruct you not
20 to answer.

21 BY MR. MANDELL:

22 Q. So the Flint Water case is another
23 case that you've worked on with the Department of
24 Justice?

1 A. Yes.

2 Q. In the last several years?

3 A. Yes.

4 Q. Fair to say you were deposed in that
5 case last fall?

6 A. I -- yes.

7 Q. And do you know how much the
8 business of Gradient billed the United States
9 Department of Justice in that case as of the time
10 of your deposition?

11 A. I don't.

12 Q. Do you know if it was on a scale of
13 a magnitude similar to this?

14 Meaning this case, the 4 million
15 that we were just talking about, 4 million-plus?

16 A. I'm sure it wasn't this high. I
17 don't know exactly what it was.

18 Q. Do you know if it was in the
19 hundreds of thousands?

20 A. I -- I believe it was more than a
21 million.

22 Q. Okay. Any other -- strike that.
23 Are there any other clients of yours
24 that you have for which your total billings are

1 over a million dollars?

2 A. Yes.

3 Q. Which ones?

4 A. I believe that's confidential.

5 MR. SNYDOW: It's not
6 privileged.

7 MS. PLATT: If she can't
8 disclose it, it's privileged.

9 MR. MANDELL: Well, hold on.

10 BY MR. MANDELL:

11 Q. Are there any cases in which you
12 have been disclosed as an expert witness in which
13 you have billed over a million dollars that you
14 are aware of?

15 A. I don't think so.

16 Q. Okay. How about non-litigation
17 work, meaning you get at -- strike that -- you get
18 asked to write articles in journals and journal
19 articles and give testimony before public boards
20 and that type of thing; right?

21 A. Yes.

22 Q. And you're paid for your time doing
23 that; is that true?

24 A. Gradient is paid, yes.

1 Q. Gradient is paid, but then you get
2 the allocation into your billings requirement;
3 right?

4 A. That goes towards my goal, but
5 that's not money I receive directly.

6 Q. Right.

7 A. Right.

8 Q. And I'm going to ask you about that
9 too, but I just wanted to know first: Is there
10 any other client that you have for which you have
11 billed them over a million dollars?

12 A. Yes.

13 Q. Okay. Do you know how many of those
14 exist?

15 A. I would say a handful, but I'm not
16 sure.

17 Q. Do you have any that you could name?

18 A. TCEQ.

19 Q. Okay. And that's the Texas Council
20 on Environmental Quality, or something like that?

21 A. Something like that.

22 Q. Okay. Is the reason that you
23 mentioned that entity because that entity was
24 mentioned in several of the articles that we were

1 talking about?

2 A. I mentioned it because it's a
3 government contract and that's all public
4 information.

5 Q. I see. Are there any other clients
6 that you have that have billed over a million --
7 that you have billed them over a million dollars
8 that you can remember, as you sit here today?

9 A. I believe, I mean, there are one or
10 two that are a maybe, but I believe that is
11 confidential.

12 Q. Is it fair to say that you have many
13 different projects at Gradient that you're working
14 on at any given time?

15 A. Yes.

16 Q. How many different projects are you
17 working on right now?

18 A. Probably about 10 to 15.

19 Q. And what percentage of your time
20 over the last two or three years has this case
21 been in terms of your billing?

22 A. Are you saying of my personal time
23 or?

24 Q. Sure.

1 A. I believe it's less than half, but I
2 don't know precisely.

3 Q. Can you give any more clarity on
4 that? Is it less than -- is it more than 5
5 percent?

6 A. I think it's safe to say more than
7 5, but where between 5 and 50, I'm just not sure.

8 Q. Do you know if it's closer to the 5
9 or closer to the 50?

10 A. I don't know as I sit here.

11 Q. Okay.

12 MS. JOHNSON: Counsel, we've
13 been going for a little over an hour.

14 MR. MANDELL: Yeah. You want
15 to take a break?

16 MS. JOHNSON: Yeah.

17 MR. MANDELL: Sure.

18 THE VIDEOGRAPHER: The time is
19 11:16 AM. We're going off the record.

20 (A recess was taken.)

21 THE VIDEOGRAPHER: The time is
22 11:28 AM. We're going back on the
23 record. Please, proceed counsel.

24 MR. MANDELL: And just for the

1 record, my stopwatch I've been keeping is
2 at 1 hour 59 minutes. So that's where
3 I'm at. Just to put the time on the
4 record.

5 MS. JOHNSON: Okay. We'll
6 verify with the videographer but...

7 BY MR. MANDELL:

8 Q. Dr. Goodman, can I ask you this
9 question.

10 Do you understand that there's
11 another Gradient employee -- business of Gradient
12 employee that's working on this case as well;
13 right?

14 A. Yes. Yes.

15 Q. Is that Dr. Bailey?

16 A. Yes.

17 Q. And does she -- Dr. Bailey -- have a
18 separate bill from you?

19 A. Yes.

20 Q. Did you have -- have you made any
21 notes while you've been engaging on this project?

22 A. No.

23 Q. You have zero notes in any time --

24 MS. JOHNSON: Objection.

1 BY MR. MANDELL:

2 Q. -- that you've worked on this
3 project?

4 MS. JOHNSON: Covered under
5 CMO 17.

6 MR. MANDELL: Well, if there
7 are notes that form the basis of her
8 report.

9 MS. JOHNSON: That's protected
10 under CMO.

11 BY MR. MANDELL:

12 Q. Okay. Let me -- I'll ask another
13 later.

14 Ever published -- since the time
15 when you published the article about smoking and
16 meso that you were attempted to publish that got
17 rejected, have you ever published any articles
18 that say that smoking doesn't cause mesothelioma?

19 A. I am not sure. It certainly hasn't
20 been the focus of an article.

21 Q. Of all of the topics that we've
22 covered so far where there were other individuals
23 that were questioning your scientific objectivity,
24 for any of the ones that we've talked about, have

1 you done anything to try to correct the record
2 publicly with regard to those items that we
3 discussed?

4 A. I haven't directly addressed any --
5 anything in terms of if they said something that
6 wasn't true, but, for example, if it was on a
7 publication and the publication is out there. So
8 that information is there. If people want to know
9 the truth, they can find it by looking at the
10 article.

11 Q. So let me ask a more precise
12 question.

13 You have done nothing to directly
14 address any of the topics that we've covered in
15 terms of other individuals questioning your
16 scientific objectivity; true?

17 A. That is correct.

18 Q. Okay. You had mentioned that you
19 think you did send a letter to that Oregon county
20 board.

21 Do you remember that?

22 A. Yes.

23 Q. Okay. And you still have that
24 letter?

1 A. Yes.

2 Q. And you can produce that to us?

3 A. I can.

4 MR. MANDELL: Okay. And we
5 would request that we get and we can deal
6 with that separately.

7 MS. JOHNSON: Yes, that's
8 fine.

9 We would also request the FOIA
10 document that you reference.

11 MR. MANDELL: Let's deal with
12 this whole issue separately.

13 BY MR. MANDELL:

14 Q. Have you been paid by the United
15 States Government to do any work other than the
16 cases that you referenced earlier, the couple of
17 cases that you're working as an expert witness on?

18 A. There's one project I can think of
19 in the past where we received funding by USEPA to
20 evaluate the pathophysiological progression of an
21 exposure down through the ultimate toxic effects.
22 I believe I've also been on committees. So I
23 don't know that it was necessarily a project with
24 Gradient, but, you know, EPA asked me to be part

1 of a committee that reviewed an EPA evaluation.

2 Q. Any other money that you're aware of
3 that has gone from DOJ to Gradient as a result of
4 this case, other than the billing that we see in
5 front of us and Dr. Bailey's bill that I think
6 will be forthcoming at some point?

7 A. I -- not as I sit here. I don't
8 think so.

9 Q. Are you getting paid by anybody
10 other than DOJ for your work on this case?

11 A. No.

12 Q. Have you ever been paid by any of
13 the entities who manufacture or sell or distribute
14 TCE, PCE, benzene, or vinyl chloride to do work
15 relating to those chemicals?

16 A. I -- I am not sure. I -- I have
17 done work for the HSIA, which I believe is the
18 Halogenated Solvent -- I don't remember what
19 the --

20 Q. Industrial Alliance?

21 A. Is that what it stands for?

22 (Laugh).

23 Q. I'm going to check in a second, but
24 I think we're close.

1 A. Okay. I have done work for them on
2 TCE issues.

3 Q. Okay. And -- okay.
4 Any other that you're aware of, as
5 you sit here today?

6 A. I believe that ACC funded our
7 epidemiology analysis of the Pliofilm cohort,
8 which would be benzene.

9 Q. Could you break down the work that
10 you do at the business of Gradient? How much is
11 litigation and how much is other stuff?

12 A. It really varies from year-to-year.

13 Q. What about this year?

14 A. This year is mostly litigation, I
15 believe, but there has also been other
16 non-litigation projects.

17 Q. So what percentage of your time this
18 year is litigation-based versus not?

19 A. I would have to look.

20 Q. Is it as much as 90 percent?

21 A. I do not think it's that high.

22 Q. Are you working on any other water
23 contamination cases right now, other than the
24 Flint Water case?

1 A. Yes.

2 Q. What? Which ones?

3 A. If I have been deposed, does that
4 mean it's not confidential?

5 MS. JOHNSON: It's
6 confidential. If you've been disclosed,
7 then you can. Then you can answer the
8 question, but if not.

9 BY MR. MANDELL:

10 Q. Have you been deposed in any other
11 water contamination cases?

12 A. Yes.

13 Q. Which ones?

14 A. There's one with Military Highway
15 Water and Sewer Company in Texas.

16 Q. Any others that you're aware of in
17 terms of water contamination issues, any other
18 cases?

19 A. Flint.

20 Q. Right. Other than Flint.

21 A. There was one case in New Jersey and
22 one case in Washington, DC regarding lead in
23 water.

24 Q. Do you know the names of the cases?

1 A. The Washington one was WASA.

2 Q. WASA?

3 A. WASA. It was the Washington -- I
4 can't remember the -- what the acronym stands for.

5 Q. Is it W-A-S-A?

6 A. I believe so, yes.

7 Q. And what about the New Jersey one?

8 A. Maybe that -- that might be the
9 Water and Sewer Authority, but I'm not sure. The
10 New Jersey one I cannot remember.

11 Q. Oh. The WASA is the Water and Sewer
12 Authority?

13 A. I think that's what the acronym
14 stands for.

15 Q. Is that who you were working on
16 behalf of?

17 A. Yes.

18 Q. And do you know anything about the
19 New Jersey case? The name of any plaintiff or
20 defendant or?

21 A. No, I can't remember.

22 Q. Of the \$4.3 million that we were
23 just looking at that the business of Gradient has
24 billed on this case, how much of that money do you

1 get personally?

2 A. Oh. It's a very small percentage.
3 I don't know exactly what it would be.

4 Q. Well, how does that get determined?

5 A. There's a complicated formula
6 (laugh) and that I know there's many factors that
7 go into it. Only one of them being revenue. So
8 I'm not quite sure. I'm not quite sure how it's
9 calculated.

10 Q. Would you agree with me that revenue
11 is one of the factors in that formula that you're
12 talking about?

13 A. It is one of the factors, yes.

14 Q. And so -- strike that.

15 Is there -- how would we go about
16 finding how much you personally stand to benefit
17 from that \$4.3 million currently if we -- if we
18 wanted to try to figure that out?

19 MS. JOHNSON: Objection to
20 form.

21 BY MR. MANDELL:

22 Q. Do you understand the question?

23 Let me ask it differently. It was a
24 poor question.

1 If we wanted to figure out how much
2 money you were going to make from that
3 \$4.3 million, how would we do that?

4 A. Well, like I said, it varies from
5 year-to-year, but what I can tell you is it's a
6 small percentage of the total amount.

7 Q. Who holds that formula?

8 A. I'm not sure. I assume the board
9 maybe.

10 Q. The board of Gradient?

11 A. Yes, and also Gradient got acquired
12 by Geosyntec a year ago, and so now I'm actually
13 even less sure about how it works. (Laugh).

14 Q. Is there a board of Geosyntec?

15 A. I believe so, yes.

16 Q. Are you on that board?

17 A. No.

18 Q. Do you know what the formula is?

19 A. I don't.

20 Q. So as you sit here today, your
21 testimony is you do not know the formula by which
22 you get compensated from your projects, including
23 one like this where you billed \$4.3 million?

24 A. That's correct.

1 Q. And so if we were to ask for that
2 formula -- have you ever seen it?

3 A. I don't think so.

4 Q. If we were to ask for that formula,
5 how would we ask for that? What would we ask for?

6 MS. JOHNSON: Objection.

7 Form.

8 THE WITNESS: I don't know.

9 BY MR. MANDELL:

10 Q. So if we were to ask for the formula
11 that is kept by Geosyntec to determine
12 compensation for its principals like yourself, you
13 would know what we're talking about?

14 A. I know what you're asking. I also
15 don't know if it's confidential or not.

16 Q. And put that issue aside just for
17 now. But if we were to send a request asking for
18 that information, you would know what we're
19 talking about; true?

20 A. Yes.

21 Q. Okay. Is there any other way to
22 figure out how you personally stand to benefit
23 from that -- financially from that \$4.3 million
24 and continuing billing, other than to get that

1 formula?

2 MS. JOHNSON: Objection to
3 form.

4 THE WITNESS: Yeah. I mean, I
5 can only say it's a small percentage
6 that -- that's part of the formula and
7 but, I mean, this is revenue for the
8 company and that pays people's salaries
9 and pays rent and all of that other
10 stuff. So it's only a small percentage
11 that -- that comes.

12 BY MR. MANDELL:

13 Q. But, respectfully, if you don't know
14 what the formula says, you don't know how it gets
15 determined; right?

16 A. I -- I know that it's a small
17 percent. That's what I know.

18 Q. But you don't know what percent or
19 how; right?

20 A. No, and I do think it varies by year
21 also or by other factors.

22 Q. Do you know how much it was in 2023?

23 A. I don't.

24 MS. JOHNSON: Objection.

1 Form.

2 BY MR. MANDELL:

3 Q. Meaning you don't know what your
4 salary was including salary, bonuses, whatever, in
5 2023?

6 A. Not as I sit here.

7 Q. Do you have a ballpark?

8 A. You're saying everything, salary
9 plus bonuses and?

10 Q. Sure.

11 [REDACTED]

12 Q. What about 2024?

13 A. Similar.

14 Q. In this case, you're billing \$785 an
15 hour for your time; is that true?

16 A. Yes.

17 Q. You have that billing in front of
18 you that's Exhibit 6; right?

19 A. Yes.

20 Q. When you look at that billing, when
21 you look at the time that you -- there's an
22 overall time like on page 1, do you see we're
23 looking at literally Bates number 1? It says
24 "Principal I Julie Goodman"?

1 A. Yes.

2 Q. And it has your total time for this
3 one invoice; right?

4 A. Yes.

5 Q. Then if you looked on page 3, it has
6 a breakdown of your work; right?

7 A. Yes.

8 Q. And do you see how it says
9 "Research"?

10 A. Yes.

11 Q. What -- what is subsumed under the
12 activities that you would be doing such that you
13 would put the words "Research" there?

14 A. Just like the word implies,
15 basically looking at the science.

16 Q. So does that mean like reading
17 epidemiology studies, toxicology studies,
18 mechanism studies?

19 A. Yeah.

20 Q. Anything else?

21 A. I mean, it could be writing up
22 summaries or reviewing tables or looking at the
23 studies and looking at the tables.

24 Q. Well, so you have here it says

1 "Research"; right?

2 A. Yes.

3 Q. There are other places in your
4 billing where you say things like "work on
5 report"; right?

6 A. Yes.

7 Q. And so is it fair to say that when
8 you put the words "work on report," you're working
9 on your report?

10 A. Yes.

11 Q. And when you're doing research,
12 that's something separate than that?

13 A. I think I sometimes use them
14 interchangeably because, I mean, sometimes when
15 I'm doing research that -- that, you know, would
16 result in text that is in the report.

17 Q. But you understand that the purpose
18 of this is to give, like, the Department of
19 Justice an idea of what you're doing; right?

20 A. Yes.

21 Q. And so when you put down "research,"
22 is what you're saying that there are times where
23 you put down "research," but you actually mean
24 writing report?

1 A. Well, I think they kind of -- those
2 tasks sort of overlap.

3 Q. Then why would you separate them at
4 different points in the bill?

5 A. I think it's just whatever I think
6 as I'm sitting down that day to write down what's
7 in my -- the time.

8 Q. Do you have any structure for how it
9 is that you detail what it is that you're doing in
10 these invoices?

11 A. What do you mean by "structure"?

12 Q. Are there any documents that
13 determine when you put down the word "Research"
14 what that's supposed to mean?

15 A. No.

16 Q. Any documents that -- that say when
17 you put down "work on report," what that's
18 supposed to mean?

19 A. No.

20 Q. Have you ever thought of doing that?

21 A. No.

22 Q. In this case, have you done any
23 objective scientific tests?

24 A. What do you mean by "tests"?

1 Q. Any type of -- anything other
2 than -- strike that.

3 Any actual testing, meaning not
4 reading other people's scientific literature in
5 which they conduct testing.

6 I mean, ever gone into a lab to look
7 at animals? Ever, you know, done any type of
8 studies to determine mechanism of action?
9 Anything like that?

10 A. I have not done any laboratory
11 studies --

12 Q. Anything else --

13 A. -- for this case.

14 Q. -- that would fall into that
15 category, meaning other than animal studies?

16 A. Well, I said laboratory studies.

17 Q. Fair.

18 A. Experimental studies.

19 Q. Fair. Fair.

20 Anything other than that? Any other
21 scientific testing other than laboratory studies?
22 Meaning you haven't done laboratory studies. Have
23 you done any other type of scientific testing?

24 A. Well, I've done a systematic review.

1 Q. Other than reading epidemiology
2 studies and toxicology studies, other than reading
3 other people's studies, have you yourself sought
4 to perform any type of testing?

5 A. Well, I would argue that doing a
6 systematic review is a type of scientific
7 analysis. That is -- that is what I've done for
8 this case.

9 Q. Okay. That is all that you've done;
10 true?

11 A. Well, I also reviewed agency
12 reviews.

13 Q. Is that not part of a systematic
14 review?

15 A. Not necessarily.

16 Q. Okay. So you've done a systematic
17 review of the literature as you understand it to
18 exist, which includes agency reports; true?

19 A. No.

20 Q. Tell me how that's not correct.

21 A. A systematic review is a review of
22 independent studies and then conducting a
23 rigorous, systematic, transparent review of the
24 state of the science.

1 I also looked at other reviews, so
2 meta-analyses and pool analyses and agency
3 reviews, to -- to just provide that information as
4 well to demonstrate, you know, when we're in
5 agreement or when we're in disagreement and why.

6 Q. Could you look at page 176 for me
7 when you get a chance. Or when you get there, let
8 me know.

9 A. Yes, I'm there.

10 Q. Is this billing for you for the
11 month of January 2025?

12 A. Yes.

13 Q. And under the detailing section of
14 what you say you're doing for these reports, is it
15 true that every single one of your billings for
16 that period of time, which I believe are 28
17 separate line items, all literally say only the
18 word "Research" except for one of them says "Calls
19 with DOJ" and then the word "Research"?

20 A. Yes.

21 Q. So is this an accurate rendition of
22 detailing of what you did during that month of May
23 2025?

24 A. You mean --

1 MS. JOHNSON: Objection.

2 Form.

3 THE WITNESS: -- in January

4 2025?

5 BY MR. MANDELL:

6 Q. What did I just say? I'm so sorry.

7 I meant January 2025. I apologize.

8 A. Yeah, as I said, I kind of look at
9 research and working on the report as kind of
10 interchangeable.

11 Q. So when you say "Research" here, is
12 what you're saying that you were actually working
13 on the report in part?

14 A. I was doing both.

15 Q. And as you look at this billing
16 page, do you think that this accurately reflects
17 what you were doing as you detailed those words?

18 A. Yes.

19 Q. Do you think anybody could look at
20 that and think maybe you weren't working on your
21 report at all?

22 MS. JOHNSON: Objection.

23 Form.

24 THE WITNESS: I don't know.

1 (Laugh).

2 BY MR. MANDELL:

3 Q. You are the Principal I on this
4 project; true?

5 A. Yes.

6 Q. Is it your testimony that the
7 opinions in the five reports that we marked as
8 Exhibits 1 through 5 are your opinions and nobody
9 else's?

10 A. Yes.

11 Q. On the first page of the billing --
12 I'm just looking at the first page as an
13 example -- there are a number of other titled
14 individuals from Gradient that are on that list;
15 true?

16 A. Yes.

17 Q. Who is the principal scientist?

18 A. On this invoice, it was Kim Reid.

19 Q. Why do you have a principal
20 scientist?

21 A. These titles don't reflect people's
22 role on the project. These are their job titles.

23 Q. So when you sent this bill to the
24 Department of Justice and on it on page 1 list

1 that the principal scientist on the project was
2 Kim Reid, is what you're saying that you were not
3 intending to mean that Kim Reid was the principal
4 scientist on the project?

5 A. Right. If like, for example, if you
6 look in other invoices, it says Robin Pruitt with
7 principal because she's also a principal. This is
8 just their -- their job title.

9 Q. So is what I -- strike that.

10 Is it true that when you, on behalf
11 of Gradient, sent this invoice to the Department
12 of Justice and it says that Kim Reid is the
13 principal scientist on the project, you did not
14 intend to mean that Kim Reid was the principal
15 scientist; true?

16 A. That is true.

17 Q. Okay. Is that the same thing for
18 the other categories of titles that you would have
19 sent to the Department of Justice in all of these
20 invoices?

21 A. Yes, these --

22 MS. JOHNSON: Objection.

23 Form.

24 THE WITNESS: These titles

1 reflect people's job level.

2 BY MR. MANDELL:

3 Q. Why would you put the titles on
4 there if they have no meaning?

5 A. The level of the person determines
6 what their billing rate is. So that's why they're
7 categorized like that.

8 Q. Have you ever -- strike that.
9 So, again, if there are other
10 principal scientists listed on here, you would say
11 that that's inaccurate in terms of the actual fact
12 of what's happened; true?

13 A. It --

14 Q. Let me ask a different question.
15 If there are other people listed in
16 different times -- maybe Kim Reid too -- as the
17 "principal scientist," you would say that is not
18 actually, in fact, accurate in terms of what
19 they're actually doing on this project; true?

20 A. The way that question is worded is
21 kind of strange.

22 All that reflects is their job
23 level. It doesn't reflect what they did on the
24 project.

1 Q. Even though that's how you've sent
2 it to the Department of Justice; true?

3 A. I --

4 MS. JOHNSON: Objection.

5 Form.

6 THE WITNESS: I don't think
7 there's anything unclear about how this
8 was sent. This is how Gradient has sent
9 invoices for decades.

10 BY MR. MANDELL:

11 Q. Who is Denali Boon?

12 A. She's an epidemiologist.

13 Q. She works at Gradient?

14 A. Yes.

15 Q. Do you have any idea how much time
16 she billed on this case?

17 A. I know she has billed a lot of
18 hours. I don't know how many.

19 Q. Would the number of 2300 hours sound
20 within the ballpark of what she may have billed on
21 this case?

22 A. I couldn't say precisely, but she
23 has put in a lot of time over the last few years.

24 Q. Do you know how much time you have

1 billed on this project?

2 A. I don't.

3 Q. Do you have a ballpark?

4 A. It's all here. (Laugh). I could
5 add it up, but I don't know as I sit here.

6 Q. So would a number like 975 to 980
7 sound about right to you hours, individual hours?

8 A. I -- I would have to add it up.

9 Q. Do you know why it is that Denali
10 Boon has spent almost two and a half times the
11 amount of hours on the case, if that is in fact
12 accurate, than you?

13 A. Yes, because everything --
14 everything on this project is done under my
15 direction. So I determine the scope and what
16 needs to be done and what needs to be analyzed and
17 oversee it all. So -- so I do not -- so the
18 majority of time spent is -- is spent by junior
19 staff members.

20 Q. When you say majority of the time
21 spent is spent by junior staff members, does that
22 mean like they do the pulling of the epidemiology
23 studies, they do writing the report, they do all
24 that type of stuff?

1 A. So, again, I come up with the scope
2 and the direction of what needs to be done and,
3 yes. So, for example, I determine that literature
4 searches needed to be conducted and so, for
5 example, Denali worked with a librarian to come up
6 with literature search terms and then showed them
7 to me and then I approved of them. And then the
8 literature search was conducted by junior
9 staffers, who would then go through the literature
10 searches and pull the relevant articles.

11 Q. And then they -- is it that they
12 determine which ones to give you to look at?

13 A. So any article that looked at any of
14 the chemicals of interest in this case and any of
15 the health outcomes in this case were evaluated.

16 Q. Right.

17 A. That any case controller or cohort
18 studies for epidemiology I should say.

19 Q. Right.

20 A. And then --

21 Q. Meaning -- I'm sorry. Are you
22 finished?

23 A. Any relevant articles as defined in
24 my report.

1 Q. Right. Meaning there they would go
2 through, pull the epidemiology studies, take a
3 look at them, and then give you the ones that they
4 thought were relevant to the case as you have
5 given them the scope; true?

6 A. As I said, under my direction. So
7 there are very specific directions regarding what
8 they should be pulling.

9 Q. But they are the ones reading the
10 epidemiology studies and determining which ones to
11 give to you; true?

12 A. Under my direction, and there are
13 always two separate people looking at the
14 literature search to make sure that no study was
15 missed and, when in doubt, we would include it
16 just to make sure that we didn't miss something
17 relevant.

18 Q. So my question is very precisely:
19 Isn't it -- is it true that there are junior
20 associates and other staff that are the ones that
21 pull the epidemiology studies and make a
22 determination as to whether or not they fit within
23 the scope that you have given them in terms of
24 what to give you; true?

1 A. Yeah. Yes.

2 Q. Okay. We've talked a little bit
3 about your work as an expert witness; true?

4 A. Yes.

5 Q. Fair to say that you've been
6 retained as an expert witness in litigation
7 hundreds of times?

8 A. I would say more than a hundred. I
9 don't know if it's hundreds.

10 Q. More than a hundred, less than how
11 many?

12 A. I don't know.

13 Q. Okay. And in those 100 times that
14 you've been retained as an expert witness, is it
15 fair to say that you've never testified at trial
16 on behalf of an injured plaintiff?

17 A. That is true.

18 Q. Is it true that you've never
19 testified at deposition on behalf of an injured
20 plaintiff?

21 A. That is true.

22 Q. How many depositions total have you
23 given?

24 A. I think around 25 or 30.

1 Q. And how many times have you
2 testified at trial?

3 A. Around six or seven.

4 Q. Now, is it fair to say that of the
5 over 100 times that you've been deposed -- strike
6 that -- been retained as an expert witness that
7 there have only been three times in which you
8 believe you were retained by a plaintiff, even
9 though you didn't give testimony on their behalf;
10 true?

11 A. Yeah. Yes.

12 Q. And could you -- strike that.
13 Is it fair to say that one time was
14 when you were representing a toy company who sued
15 a laboratory?

16 A. Yes.

17 Q. And is it also -- strike that.
18 You've said that in prior
19 depositions before; true?

20 A. Yes.

21 Q. And, in fact, you've called that
22 time that you testified at deposition on behalf of
23 the plaintiff; true?

24 A. Yes.

1 Q. And in that particular case, that
2 toy company was actually a defendant that you were
3 also helping to defend personal injury claims from
4 an injured person; true?

5 A. In other cases, yes.

6 Q. Related to the same issues?

7 A. Related to the same chemical.

8 Q. Right.

9 And what happened was that toy
10 company had lawsuits that were filed against them;
11 true?

12 A. Yes.

13 Q. And then as part of their defense to
14 that lawsuit, those lawsuits, they tried to file a
15 third -- a separate claim against the lab; true?

16 A. I don't know if it was part of the
17 defense.

18 Q. Okay. Well, you knew that they were
19 getting -- had lawsuits filed against them; true?

20 A. Yes.

21 MS. JOHNSON: Objection.

22 Form.

23 BY MR. MANDELL:

24 Q. By injured persons -- I'm sorry.

1 You knew you had -- you knew that
2 the toy company had lawsuits filed against them by
3 injured parties; true?

4 A. I know people -- some people had
5 claimed that health conditions were caused by the
6 toy.

7 Q. Right.

8 And then as -- that toy company
9 said, no, no that's not true, it actually was the
10 lab's fault; true?

11 A. No.

12 Q. Okay. That's not how that happened?

13 A. No.

14 Q. Okay. But that was -- that was
15 your -- when you were being retained by the toy
16 company to file a separate claim against the lab
17 to say that the lab didn't do the adequate testing
18 for the toy, that was one of the three times that
19 you've been retained by a plaintiff, as you see
20 it; true?

21 A. Yes.

22 Q. Okay. There is a second time that
23 you believe is confidential that you can't talk
24 about; true?

1 A. Correct.

2 Q. You are a consulting expert?

3 A. Yes.

4 Q. And you can't give us any detail
5 about that; true?

6 A. That is correct.

7 Q. What's the third time?

8 A. I can't remember. (Laugh).

9 Q. So how do you know that there are
10 three times?

11 A. I -- I don't. And I remember being
12 asked this question two weeks ago, and I said two
13 or three and then the third time, I don't know. I
14 don't know what I thought the third time was. I
15 meant to look it up later and then I never did.

16 Q. What -- what dep -- strike that.
17 I'm sorry. Are you finished?

18 A. Yes.

19 Q. Okay. Did you -- I'm thinking I
20 heard you say this.

21 Did you say you were deposed a
22 couple weeks ago?

23 A. Yes.

24 Q. What was that case?

1 A. That was the Military Highway Water
2 and Sewer Company case.

3 Q. And where was that deposition?

4 A. In Boston.

5 Q. So in summary, of the hundred-plus
6 times that you've been retained as an expert,
7 every one of them has been for the defense, other
8 than one time where you were representing or were
9 retained to testify on behalf of a toy company
10 that had claims filed against them and they filed
11 a separate claim against the lab; true?

12 A. Yes.

13 Q. One was confidential that you can't
14 talk about because you were a consulting expert;
15 true?

16 A. Yes.

17 Q. And one you don't remember; true?

18 A. Right. So it might only be two.

19 Q. Okay. In addition to providing
20 expert witness work in litigation, you also, as we
21 talked about, do some research and author
22 publications on chemicals and their potential
23 connection to certain diseases; fair?

24 A. Yes.

1 Q. And other principals at Gradient do
2 the same?

3 A. Yes.

4 Q. Have you ever gone through and
5 calculated what percentage of time when you and
6 others at Gradient are analyzing whether a
7 chemical causes a disease? Have you ever analyzed
8 how much of the time Gradient employees find that
9 the chemical doesn't cause the disease at levels
10 that are hazardous to humans?

11 Excuse me.

12 A. No.

13 Q. So in the CPI article, they mention
14 that they did do an analysis of that and found
15 that 98 percent of the time that there were
16 authors from Gradient that discussed the question
17 of whether a chemical caused a disease at levels
18 that humans are normally exposed to. They found
19 that 98 percent of the time you-all had said that
20 the chemical didn't cause the disease at that
21 level.

22 Does that sound right to you?

23 A. That is a totally made-up statistic.

24 Q. So when they say that in their

1 article, you're saying that has no basis in fact?

2 A. That is what I'm saying.

3 Q. Right.

4 Have you ever gone through your
5 articles to look at how -- what percentage of the
6 time you actually find that chemicals do or don't
7 cause the disease that you're studying?

8 A. I have not.

9 Q. Do you know if it's 90 percent plus?

10 A. A lot of the articles aren't about,
11 you know, what -- at what level chemicals cause
12 disease. There are a variety of topics. Some of
13 them are systematic review methods. Some of them
14 are about mode of action. For example, there's
15 one on the mode of action by which particulate
16 matter can cause cardiovascular effects.

17 Q. Sure.

18 I'm talking about the ones that do
19 discuss that. Meaning the ones that do discuss
20 does a chemical cause a disease, is the number
21 like 90 percent plus a number that you would say,
22 yeah, that's probably about right in terms of the
23 amount of times that you find that the chemical
24 doesn't cause the disease at the levels that

1 you're studying?

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

3 Q. Does that number sound right to you?

4 A. I -- no, I would have to look, but
5 that seems high.

6 Q. Okay. Do you know what percentage
7 of the time you have articles that you have
8 published that are funded in any way?

9 A. Most articles I have written have
10 been funded.

11 Q. Close to 100 percent?

12 A. Yes, high 90 percent for sure.

13 Q. Okay. And do you know how many
14 times or what percentage of the time your -- your
15 literature is funded by the -- an industry member
16 that has an interest in the outcome of the -- of
17 the article or the journal or the publication?

18 A. So I think the way to answer that is
19 that whoever funds the paper obviously has an
20 interest, or why else would they be funding the
21 paper.

22 But I can say, for example, when the
23 nickel industry trade group asked me to write a
24 paper, she said she wanted to know whether there

1 was a risk or not because if there was, they would
2 take action on it. So, I mean, when you say did
3 the funders have an interest, yes, but it's not
4 necessarily an interest to show that the chemical
5 doesn't cause harm.

6 Q. Right.

7 I'm just asking you: Do you know
8 if -- do you know what percent of the time your
9 articles are funded by the industry that does have
10 an interest in the outcome of the article?

11 A. Well, as I said, anyone funding an
12 article is going to have an interest in the
13 outcome.

14 Q. So is it close to 100 percent of the
15 time?

16 A. I don't -- I don't know the percent
17 off -- offhand.

18 Q. Sure. But, and so you've never gone
19 through and calculated it. So you don't know the
20 answer precisely; true?

21 A. Yes.

22 Q. But you have written all the
23 articles; right?

24 A. Yes.

1 Q. And you know who funds all of them;
2 true?

3 A. Yes.

4 Q. Is it fair to say that it's close to
5 100 percent, or is that not accurate?

6 A. I think it's a high -- yes, close to
7 100 percent have been funding it, but I think it
8 would be -- it would be inappropriate to say that
9 they're funding it because they want a specific
10 result.

11 Q. Well, when you say that you believe
12 that all, you know, why would anybody fund an
13 article unless they have an interest in it,
14 naturally if they have an interest in it, for at
15 least the members of the industry that we're
16 talking about, there would be an outcome of the
17 study that would be more helpful to them than
18 other outcomes; true?

19 A. What I think is that the outcome
20 could then determine actions. For example, if an
21 outcome was that a chemical could cause cancer,
22 then they would have to -- they would act on it so
23 that they wouldn't expose people, or something
24 like that.

1 Q. And you're saying you just don't
2 know what percentages of the time when those
3 industry-funded papers get written. You're saying
4 you've just never gone and calculated how many of
5 the times you actually say that it didn't cause
6 the disease; true?

7 A. That is correct.

8 Q. Okay. Do you have contracts with
9 any of these industry entities or groups that pay
10 you to write these publications?

11 MS. JOHNSON: Objection.

12 Form.

13 BY MR. MANDELL:

14 Q. Do you understand the question?

15 A. It sounds like you're saying when
16 someone funds a paper, do I have a contract?

17 Q. Correct.

18 A. Yes.

19 Q. Okay. Do you have a contract with
20 the American Chemistry Council?

21 A. I have. I don't think -- I'm not
22 sure if I have one right now.

23 Q. How many different contracts with
24 the American Chemistry Council have you had over

1 your career in dealing with them?

2 A. I'm not sure.

3 Q. How many times have you worked with
4 them?

5 A. I'm not sure.

6 Q. Does 10 to 20 times sound about
7 right?

8 A. Sure.

9 Q. And so what are in these contracts?
10 What do they say?

11 A. The contracts describe the scope of
12 work, the budget, the schedule.

13 Q. Anything else that you can think of?

14 A. I think just kind of standard
15 contract language.

16 Q. Do you have contracts with WR Grace?

17 A. I do not right now.

18 Q. You have in the past?

19 A. Yes.

20 Q. What other industry entities have
21 you had contracts with for articles and
22 publications that you've written?

23 A. We would have to go through each
24 article, but at the end of each article, there's a

1 disclosure of interest statement or funding
2 statement that says who funded that article.

3 Q. Yeah. Got one.

4 And I've read through a number of
5 those, and is it fair to say that -- that very or
6 oftentimes, in addition to doing the funding,
7 there is also an agreement that you will send them
8 the article drafts before they get published?

9 A. Sometimes we do send them drafts,
10 but we have final say of what goes in and
11 sometimes we send them and don't -- oftentimes we
12 send it to them, but don't get any feedback. We
13 just send it and then we publish it. We're just
14 letting them see what we're submitting.

15 Q. So let me see if I understand what
16 you're saying.

17 What you're saying is: There's an
18 industry group that has come to you and asked you
19 to do work on publishing a piece of literature;
20 right? The context of what we're talking about?

21 A. Yes.

22 Q. They pay you to do it; right?

23 A. Yes.

24 Q. Sometimes millions of dollars;

1 right?

2 A. I would say that's not generally
3 true. It's generally not that.

4 Q. Sometimes millions of dollars?

5 A. I don't think so for publications.

6 Q. Well, didn't you say that TCEQ has
7 paid you millions of dollars?

8 A. Oh. So TCEQ had a contract with
9 Gradient. I think it might have totaled 1.5
10 million, but there were several different projects
11 under that contract.

12 Q. If The New York Times article --
13 strike that.

14 If one of the articles says 2.8
15 million, would that be true?

16 A. Oh. That's possible.

17 Q. Okay. So sometimes they pay you
18 millions of dollars; true?

19 A. So for each individual article, it's
20 much less than that. When we get -- for TCEQ, we
21 did several different projects --

22 Q. Okay.

23 A. -- that totaled that amount.

24 Q. There are entities that reach out to

1 you to perform literature who have paid you
2 millions of dollars for different projects; true?

3 A. You're saying overall?

4 MS. JOHNSON: Objection.

5 Form.

6 BY MR. MANDELL:

7 Q. Yeah.

8 A. I mean, over the course of several
9 projects, yes.

10 Q. And who are paying for that
11 particular project; true?

12 A. Yes.

13 Q. And you're sending them drafts
14 before they get published; right?

15 A. Sometimes we do.

16 Q. And you're saying that you don't
17 ever take any of those comments into account;
18 true?

19 A. I didn't say that.

20 Q. Or strike that.

21 You're saying that you would not let
22 that in any way influence you in tombs of -- in
23 terms of your publication of that article if you
24 thought something wasn't accurate; is that true?

1 A. That is correct.

2 Q. Who -- you had mentioned this just
3 briefly, but who owns the business of Gradient?

4 A. Geosyntec.

5 Q. And Geosyntec bought Gradient within
6 the last couple years?

7 A. Yes.

8 Q. What is Geosyntec?

9 A. They're an engineering firm
10 primarily.

11 Q. So does Gradient report to
12 Geosyntec?

13 A. I think so, yes.

14 Q. And are there people who are your
15 bosses at Geosyntec?

16 A. I believe so.

17 Q. Do your paychecks come from
18 Geosyntec?

19 A. Yes.

20 Q. Do you have any ownership interest
21 in Geosyntec?

22 A. I -- I have shares.

23 Q. You own stock in Geosyntec?

24 A. Yes.

1 Q. Do you know how much stock?

2 A. No.

3 Q. You have no idea how much stock you
4 own in the company that you work at?

5 A. I can't remember.

6 Q. Do you know who owns Geosyntec?

7 A. There's some private equity firm
8 that I can't remember the name of right now. I
9 know --

10 Q. Are you -- I didn't mean to cut you
11 off. I apologize.

12 A. Well, I know that they own some of
13 it, and then I know that people that work there
14 have shares.

15 Q. You have shares, other employees
16 have shares?

17 A. Yes.

18 Q. But the business is owned by a
19 private equity fund; true?

20 A. I -- I'm not trying to be difficult.
21 I just don't know all the details. I know there's
22 private equity in it.

23 Q. You know the name Blackstone; true?

24 A. I knew it was black something, but I

1 couldn't remember. It's Blackstone, yes.

2 Q. You know Blackstone owns Geosyntec;
3 right?

4 A. Yes.

5 Q. If it's not the world's largest
6 private equity fund, is it -- you know it's one of
7 the biggest ones?

8 A. Honestly, I'm (laugh) I'm a
9 scientist. I'm not a finance person. So I know
10 it's a big private equity firm.

11 Q. Is it your testimony that -- strike
12 that.

13 What do you know about Blackstone,
14 the private equity firm, as you've said?

15 A. It's my understanding they invest in
16 environmental companies.

17 Q. Okay. Do you know if they invest in
18 any environmental companies that manufacture or
19 produce any of the chemicals that we're talking
20 about here today?

21 A. I don't know.

22 Q. So is it your testimony that you're
23 unaware that Blackstone, as I understand it, owns
24 several companies that manufacture the chemicals

1 that we're here talking about today: TCE, PCE,
2 vinyl chloride, and benzene?

3 A. I don't know anything except that
4 they have invested in Geosyntec.

5 Q. You've met with Blackstone; true?

6 A. I've met with some people there,
7 yes.

8 Q. And they came to Boston for an
9 event?

10 A. Yes.

11 Q. At least once?

12 A. Yes.

13 Q. How many times have you met with
14 representatives from Blackstone?

15 A. I think once or twice.

16 Q. And what were the two occasions, if
17 it's -- if it's two?

18 A. I'm not sure if it's confidential or
19 not.

20 MR. MANDELL: Can we mark
21 this.

22 THE COURT REPORTER: 14.

23 (Document marked for
24 identification as Exhibit 14.)

1 BY MR. MANDELL:

2 Q. This is Exhibit 14. This is a
3 deposition that you gave on September 11th of
4 2024; true?

5 A. Yes.

6 Q. It was in the case of Sutton versus
7 W.L. Gore?

8 A. Yes.

9 Q. And can you look at page 111?

10 A. (Reviews document.)

11 Q. Sorry. 112. Very bottom of 112.

12 It says:

13 "Have you ever met with Blackstone?"

14 And your answer was:

15 "I did meet with some people at
16 Blackstone."

17 "When did you do that?"

18 "Sometime in the last year."

19 "For what purpose?"

20 "I think it was just to meet them.

21 I don't --"

22 "What did you talk about?"

23 "I don't remember."

24 "Where did you meet them?"

1 Or strike that.

2 "Where did you meet?"

3 "It was kind of a cocktail hour kind
4 of thing."

5 "Where?"

6 "In Boston."

7 "Where?"

8 "At the UMASS club."

9 Did you -- couple sentences down.

10 "Did you talk business at all?"

11 "I mean, not -- I'm sure I talked
12 about some of the work I did. I'm sure that they
13 asked --"

14 A. I'm sorry. I don't know where
15 you're reading from.

16 Q. Oh, it was page 112 to 114.

17 A. (Reviews document.)

18 Okay.

19 Q. So you do remember meeting with them
20 at a cocktail hour at the UMass club; right?

21 A. Yes.

22 Q. You didn't think it was -- strike
23 that.

24 Respectfully, in this deposition,

1 you didn't say it was confidential; true?

2 A. Yes.

3 Q. Any particular reason why?

4 A. I don't -- I guess my answers here
5 are very general. So I figured general answers
6 would be okay. I don't know.

7 Q. Well, it's not confidential; right?

8 A. I -- I don't -- I don't know what is
9 confidential and what's not.

10 Q. Okay. Needless to say, you didn't
11 think it was confidential on September 11, 2024;
12 true?

13 A. (Reviews document.)

14 Q. True?

15 A. I -- well, it looks like that I
16 didn't remember what we talked about. So if I
17 didn't remember, it wouldn't matter if it was
18 confidential or not.

19 Q. What relationship does Gradient have
20 with Blackstone?

21 A. As far as I know, Blackstone is
22 invested in Geosyntec. So that means -- and
23 Geosyntec owns Gradient.

24 Q. Do you have regular communications

1 with them?

2 A. Me personally?

3 Q. Anybody at Gradient.

4 A. I'm sure people at Gradient do.

5 Q. Okay. Do you know about that or no?

6 A. No.

7 Q. Do you know what -- whether Gradient
8 has reporting requirements for Blackstone?

9 A. I don't know.

10 Q. Who does know that?

11 A. I assume my manager.

12 Q. You're a principal and an owner of
13 the company; right?

14 A. Yes.

15 Q. You're saying you have no idea what
16 reporting requirements are necessary for one of
17 the largest private equity firms in the country
18 and the world?

19 A. Was the question that am I saying
20 that?

21 Q. Correct.

22 A. Yes.

23 Q. Have you ever talked to Blackstone
24 about this case?

1 A. No.

2 Q. Do you know if they were aware that
3 Gradient was billing over \$4 million for this
4 case?

5 A. I don't know.

6 Q. Do you know if they have site
7 visits -- regular site visits where Blackstone
8 comes to Gradient to ask questions about how much
9 they make and what their profits are for the year,
10 that type of thing?

11 A. I don't know.

12 Q. I presume you're not aware of any
13 ownership interest Blackstone has in a company
14 called Westlake?

15 A. I don't know anything about that.

16 Q. Do you know the company Westlake?

17 A. I don't.

18 Q. Do you know if they manufacture TCE
19 and PCE -- or strike that.

20 Do you know if they produce in any
21 way TCE or PCE?

22 A. I don't know either way.

23 MS. JOHNSON: Objection.

24 BY MR. MANDELL:

1 Q. Would it be surprising to you if it
2 was true that they did?

3 A. I don't know anything about them.

4 Q. Any other businesses that you're
5 aware of that Blackstone has an ownership interest
6 that are in any way dealing with the chemicals
7 that we're talking about here today: TCE, PCE,
8 vinyl chloride, benzene?

9 A. I don't know.

10 MS. JOHNSON: Objection.

11 Asked and answered.

12 THE WITNESS: I don't know
13 anything (laugh) about any other company
14 Blackstone has invested in.

15 BY MR. MANDELL:

16 Q. Okay. Do you consider yourself to
17 be an expert in Parkinson's disease?

18 A. I consider myself an expert in the
19 epidemiology and toxicology of Parkinson's.

20 Q. Do you consider yourself to be an
21 expert in the medical condition Parkinson's
22 disease?

23 A. I'm not a medical doctor. So I
24 would not consider myself an expert in anything in

1 terms of like the diagnosis or prognosis or
2 treatment of Parkinson's.

3 Q. You've never diagnosed anybody with
4 Parkinson's?

5 A. I have not.

6 Q. You've never treated anybody with
7 Parkinson's?

8 A. I have not.

9 Q. You've never cared for any type of
10 patient in any type of way who has Parkinson's
11 disease; true?

12 A. I have not.

13 Q. Is it fair to say that your sole
14 knowledge of Parkinson's disease comes from the
15 epidemiology literature and the tox literature and
16 the mechanism of action literature that you've
17 read?

18 A. Yes.

19 MS. JOHNSON: Objection to
20 form.

21 BY MR. MANDELL:

22 Q. Is that true as to every one of the
23 five diseases that we're here to talk about today:
24 Parkinson's disease, bladder cancer, kidney

1 cancer, leukemia, and non-Hodgkin's lymphoma?

2 A. My expertise is based on my
3 foundation in toxicology, epidemiology, and risk
4 assessment, and particularly in systematic review,
5 which is what I've been doing for 20 years is
6 systematically reviewing evidence regarding
7 causation.

8 Q. So is it true that you have no
9 knowledge base, expertise, training, education in
10 any one of the five diseases, aside from reviewing
11 the literature that exists in the fields of
12 epidemiology, toxicology, and mechanism of action?

13 MS. JOHNSON: Objection.

14 Form.

15 THE WITNESS: No, that is not
16 true.

17 BY MR. MANDELL:

18 Q. What else is there?

19 A. Well, I have a master's degree in
20 epidemiology, a PhD in toxicology. I was a Cancer
21 Prevention Fellow at the National Cancer
22 Institute. I'm board-certified in toxicology and
23 I'm a fellow of both the American College of
24 Epidemiology and the Academy of Toxicological

1 Sciences. And so all of the work I have done in
2 those realms has contributed to my knowledge and
3 my ability to review the science on these
4 chemicals and these health outcomes.

5 Q. Are you an expert in bladder cancer?

6 A. I would say I am an expert in the
7 epidemiology and toxicology of these chemicals and
8 as they relate to bladder cancer.

9 Q. Right.

10 You've read the epidemiology studies
11 and you've read the toxicology studies; true?

12 A. Well, I've -- I critically and
13 systematically and objectively evaluated the
14 science.

15 Q. However it is that you read those
16 studies and -- however it is that you've read
17 those studies, that is where you get your
18 foundational knowledge for bladder cancer; true?

19 MS. JOHNSON: Objection.

20 Form.

21 THE WITNESS: My
22 foundational, as I said, knowledge comes
23 from my training and my review of the
24 science.

1 BY MR. MANDELL:

2 Q. So is the answer to my question
3 correct?

4 A. Well, I would say that's part of it,
5 but it's also based on the foundation of my -- my
6 education and my other work experience.

7 Q. You've never diagnosed bladder
8 cancer; true?

9 A. I have not.

10 Q. Never treated anybody with bladder
11 cancer?

12 A. I have not.

13 Q. Never cared for any patient in any
14 way involving bladder cancer; true?

15 A. None of that is relevant to the work
16 that I do.

17 Q. Before you became an expert in this
18 case, were you an expert in bladder cancer?

19 A. I have worked on bladder cancer in
20 other projects at Gradient.

21 Q. Before this case, have you -- were
22 you an expert -- strike that.

23 Is it your work on each of these
24 individual cases that -- that makes you believe

1 that you are an expert in that particular field?

2 MS. JOHNSON: Objection.

3 Form.

4 BY MR. MANDELL:

5 Q. Do you understand the question?

6 A. So as with anybody (laugh), the work
7 that I have conducted starting with graduate
8 school and through all of my professional
9 activities, that is what makes me an expert in
10 this field.

11 Q. Let me ask a different question
12 different way.

13 Assume that there is a client who
14 calls you and says they want you to work on a
15 disease that you've never worked on before. Okay?
16 Do you follow me?

17 A. Yes.

18 Q. You do a bunch of work and you read
19 the epidemiology studies, you read the toxicology
20 studies, and you read literature on mechanism of
21 action. Okay?

22 A. Okay.

23 Q. Do you then believe that you are an
24 expert in that particular field because you have

1 read that literature?

2 MS. JOHNSON: Objection.

3 Form.

4 THE WITNESS: No.

5 BY MR. MANDELL:

6 Q. Okay.

7 A. It is because I have a foundation in
8 the -- in toxicology and epidemiology. So if
9 somebody off the street were to just read those
10 studies, they would not be an expert. But if
11 somebody has the background, the exact background
12 of me in systematic review in epidemiology and
13 toxicology, then by reviewing the state of the
14 science, they too would be an expert in that
15 field.

16 Q. Okay. You have never treated
17 anybody with kidney cancer?

18 A. That is correct.

19 Q. Never diagnosed anybody with kidney
20 cancer?

21 A. That is correct.

22 Q. You've never cared for in any way
23 any patient that has had kidney cancer; true?

24 A. That is true.

1 Q. Same thing with leukemia?

2 A. That is true.

3 Q. Same thing with non-Hodgkin's
4 lymphoma; true?

5 A. True.

6 Q. And is it fair to say that these
7 specifics of your expertise in each of these
8 diseases is the fact that you have education and
9 training in epidemiology and toxicology and you've
10 read the literature that you believe to be
11 relevant to these diseases; true?

12 MS. JOHNSON: Objection.
13 Form.

14 THE WITNESS: As I've said
15 repeatedly, it was more than just reading
16 a bunch of articles. It's having the
17 fundamentals, but then also critically
18 and systematically evaluating studies,
19 looking at study, quality looking at the
20 results, and evaluating causation in the
21 context of the Bradford Hill framework.

22 BY MR. MANDELL:

23 Q. In terms of, let's just, say
24 Parkinson's disease.

1 Would you have acquired any fact
2 relating to Parkinson's disease outside of the
3 literature and the epidemiology, toxicology, and
4 mechanism of action world that, for example,
5 you've read in this case?

6 MS. JOHNSON: Objection.
7 Form.

8 THE WITNESS: Well, yes, I
9 have had projects in the past where I
10 have evaluated Parkinson's disease. So I
11 have knowledge from past projects and,
12 again, the application of fundamentals,
13 toxicology, epidemiology, systematic
14 review.

15 BY MR. MANDELL:

16 Q. So -- so my -- I understand that
17 you're mentioning that you have this education in
18 terms of how to review those studies; right?
19 That's what you're trying to impart in part?

20 A. I think it's a little deeper than
21 that.

22 Q. But one of the things that you're
23 saying is, "I'm not just reading these articles, I
24 actually know how to read them because I was

1 taught how to read them"; right?

2 A. I have been doing this for 20 years.

3 Q. Right.

4 A. This is what I do.

5 Q. Sure. So I'm saying take that out
6 of it.

7 Meaning that's not specific to
8 Parkinson's, that's any disease that you're
9 looking at. You know how to read the epidemiology
10 and the toxicology; right?

11 MS. JOHNSON: Objection.

12 Form.

13 THE WITNESS: What I would
14 say is that if I spend (laugh) two or
15 three years looking at a body of
16 scientific literature, I -- that gives me
17 a sense of the state of the science, and
18 so I am an expert in the state of the
19 science on that topic.

20 BY MR. MANDELL:

21 Q. Okay. What I'm saying -- what I'm
22 intending to try to say is: You -- strike that.

23 What my question -- my question is
24 intended to ask is: You have said that you

1 believe that you have training and education in
2 terms of epidemiology and toxicology in terms of
3 how to review any type of study that would be in
4 those fields; true?

5 A. I have training, I have board
6 certification, and I'm a fellow --

7 Q. Right.

8 A. -- of these professional
9 organizations.

10 Q. But none of those -- none of that
11 education and training was in any way specific to
12 Parkinson's disease; true?

13 A. Some of it was.

14 Q. No, I know you've done studies -- I
15 know you've done projects on Parkinson's.

16 I'm saying your education and
17 training, that wasn't on Parkinson's disease;
18 true?

19 MS. JOHNSON: Objection to
20 form.

21 THE WITNESS: Parkinson's
22 disease was covered in classes that I
23 took as part of my training, if that's
24 what you're asking.

1 BY MR. MANDELL:

2 Q. You mean it was there were studies
3 that dealt with Parkinson's that as part of your
4 education that as an epidemiologist you looked at
5 to say, "Okay, here's how I'm going to read this
6 study"; right?

7 A. I mean, I -- in getting my degree,
8 there's -- we learned about a lot of different
9 diseases, including cancer, including Parkinson's.

10 Q. Did you -- have you taken any
11 medical course on Parkinson's disease?

12 A. No.

13 Q. Bladder cancer?

14 A. No.

15 Q. Kidney cancer?

16 A. No.

17 Q. Leukemia?

18 A. No.

19 Q. NHL?

20 A. No.

21 Q. In terms of the five diseases that
22 we're sitting here to talk about today, how would
23 you rank them in terms of which one you are the
24 most expert in and which one you are the least

1 expert in?

2 MS. JOHNSON: Objection.

3 Form.

4 THE WITNESS: I am an expert
5 in all of them.

6 BY MR. MANDELL:

7 Q. Is it your testimony that you
8 believe that you are at the exact same level of
9 expertise for all five of the diseases?

10 A. I'm an expert in all five.

11 Q. My question was a little different,
12 which is: Is it your testimony that you believe
13 that you are the exact same level of expert with
14 regard to each one of the five diseases that we're
15 here to talk about today?

16 A. I don't know what you mean by "level
17 of expert."

18 Q. I mean, would you agree with me that
19 some people have more expertise than other people
20 in certain fields?

21 A. I mean, that's such a broad
22 statement.

23 Q. Sure.

24 A. Broadly speaking.

1 Q. Can you answer?

2 A. Some people have more expertise than
3 others.

4 Q. You've been doing this for decades
5 in terms of epidemiology and toxicology; true?

6 A. Yes.

7 Q. A junior associate in epidemiology
8 would have less experience -- expertise than you;
9 true?

10 A. Yes.

11 Q. Okay. That level of expertise is
12 what I'm talking about.

13 Do you have the same level of
14 expertise in terms of Parkinson's, bladder,
15 kidney -- Parkinson's disease, bladder cancer,
16 kidney cancer, leukemia, and NHL?

17 MS. JOHNSON: Objection.

18 Form.

19 THE WITNESS: With respect to
20 the chemicals at issue in this case, yes.

21 BY MR. MANDELL:

22 Q. Okay. You're not an expert in any
23 subspecialty of toxicology; true?

24 A. Well, what I would say is, I'm an

1 expert in toxicology and that encompasses
2 subdisciplines of toxicology.

3 Q. Have you ever testified under oath
4 in a deposition that you are not an expert in any
5 subspecialty of toxicology?

6 A. I --

7 MS. JOHNSON: Objection.

8 Form.

9 THE WITNESS: I am not aware
10 of testifying either way.

11 BY MR. MANDELL:

12 Q. Would you disagree with that if you
13 had said that previously?

14 A. I think I consider myself an expert
15 in toxicology as a whole and that includes
16 subdisciplines.

17 Q. Do you have any certifications or
18 credentialing in toxicology?

19 A. Yes.

20 Q. Does it involve any subspecialty of
21 toxicology?

22 A. It is toxicology as a whole.

23 Q. Do you have any board certifications
24 or any other certifications, qualifications like

1 that, in any subspecialty of toxicology?

2 A. No. It's just for toxicology as a
3 whole.

4 Q. On your CV, it mentions that one of
5 the selected projects that you have is dealing
6 with a law firm, and it says that you "Evaluated
7 CPI literature regarding present and future risks
8 of cancer and non-cancer health effects in a group
9 of individuals from inhalation exposures to TCE
10 and PCE."

11 Do you recognize that?

12 MS. JOHNSON: Objection.
13 Form.

14 Can you show it to her?

15 BY MR. MANDELL:

16 Q. Let me just ask.

17 Do you recognize it?

18 A. Hmm. Can you say it again?

19 Q. Yeah.

20 MR. MANDELL: Off the record.

21 I'm just trying to speed it
22 up.

23 (Document marked for
24 identification as Exhibit 15.)

1 THE WITNESS: Thank you.

2 BY MR. MANDELL:

3 Q. If you turn to page 17, it's like
4 right in the middle of the page. Or best maybe a
5 little towards the top right in the middle.

6 A. Okay.

7 Q. Do you see where I just read?

8 A. Yes.

9 Q. Do you know what -- can you tell us
10 what that is?

11 A. I honestly can't remember what
12 specific project that was.

13 Q. Is there any way to find that out?

14 A. Yes.

15 Q. How would we do that?

16 A. I could look at -- find the list of
17 my past projects and try to match this up.

18 Q. And if we asked you to do that, you
19 could do that for us?

20 A. Yes.

21 MR. MANDELL: We would just
22 request that that be done.

23 MS. JOHNSON: We can deal with
24 that after.

1 MR. MANDELL: Yeah. Sure.

2 BY MR. MANDELL:

3 Q. Any other cases that you've been
4 involved or retained by law firms on that deal
5 with TCE or PCE, vinyl chloride or benzene?

6 A. Yes, there have been other cases.

7 Q. Could you tell us about those cases?

8 A. I can't think of any, as I'm sitting
9 here right now.

10 Q. How would we find out about that?

11 A. Again, I would have to look up my
12 list of prior projects.

13 Q. Okay. I want to ask you just
14 briefly about this.

15 On your CV, it says that you were an
16 adjunct faculty member in the Department of
17 Epidemiology at Harvard T.H. Chan School of Public
18 Health; true?

19 A. Yes.

20 Q. And it says that from 2009 to 2017
21 you co-instructed a course entitled "Research
22 Synthesis & Meta-analysis"; true?

23 A. Yes.

24 Q. What does that mean to be a

1 co-instructor of a course?

2 A. Basically, I was on the adjunct
3 faculty at Harvard and another professor, whose
4 primary appointment was at UMass -- I believe he's
5 at UMass Medical School -- sorry -- University of
6 Massachusetts Medical School -- and I taught this
7 class together.

8 Q. I'm from Rhode Island time. So I
9 know.

10 A. All right.

11 Q. But I appreciate that as a joke.

12 A. (Laugh).

13 Q. What did you do? Meaning like what
14 did you physically do?

15 A. Oh.

16 Q. Were you -- for every single class
17 of that semester, were you there? What did you
18 do?

19 A. Yes. So Chung is the name of the
20 other professor. So he and I, each year before
21 the semester started, we worked out a curriculum
22 together, and we also invited other people to come
23 in to teach some of the classes.

24 So, for example, we had Harvard

1 librarians come in to teach about doing literature
2 searches. We -- so even for the classes that I
3 didn't teach, I would -- I would sit in on the
4 class.

5 But the big project in the class was
6 to do meta-analysis, and so we would spend time
7 with the students sometimes in class, sometimes we
8 would meet with them out of class, to help them
9 with their meta-analysis projects.

10 Q. Were you present for every class?

11 A. I mean, I'm sure I missed some of
12 them if I had other commitments, but I tried to be
13 there for every class.

14 Q. Dr. Goodman, you're here as an
15 expert witness for the United States Department of
16 Justice --

17 A. Yes.

18 Q. -- on behalf of the United States;
19 true?

20 A. Yes.

21 Q. And you understand that this
22 litigation is based on the Camp Lejeune Justice
23 Act passed by Congress?

24 A. Yes.

1 Q. Have you read the statute?

2 A. I do not believe so.

3 Q. Any reason why you wouldn't have
4 read the statute that forms the basis for the
5 case?

6 A. Because I was tasked with evaluating
7 whether or not the scientific evidence supported a
8 causal association between five chemicals and five
9 health outcomes. So I didn't really need the
10 statute to do that evaluation.

11 Q. When you say you were tasked with
12 finding whether there was a chemical connection
13 between or causal connection between these
14 chemicals and the diseases, who tasked you?

15 A. The DOJ.

16 Q. What was the task that was given to
17 you exactly as you've said it?

18 A. To evaluate general causation.

19 Q. And did -- was there any description
20 in terms of how that was to be done?

21 MS. JOHNSON: Objection.

22 Privileged.

23 You don't have to answer that.

24 BY MR. MANDELL:

1 Q. Did you receive any information that
2 gave you an understanding of the standard of proof
3 at issue in the case?

4 MS. JOHNSON: Objection.
5 Privileged.

6 MR. MANDELL: How is that
7 privileged?

8 MS. JOHNSON: You're asking
9 her what standard she used and what was
10 communicated from us to an expert.

11 MR. MANDELL: What was my
12 question exactly? Sorry.

13 (The reporter read the record
14 on page 205 lines 2-4.)

15 MR. MANDELL: Yeah, I don't
16 think I said from DOJ.

17 MS. JOHNSON: Okay. Go ahead.

18 BY MR. MANDELL:

19 Q. Have you received any information
20 from any source in terms of what the standard of
21 proof is in this litigation?

22 A. From my review of plaintiffs' expert
23 reports, it's my understanding that the standard
24 for the litigation is "at least as likely or not,"

1 but -- but I was asked whether the evidence
2 supported causation and that's what I did.

3 Q. Meaning is it fair to say that you
4 did not attempt to utilize an "at least as likely
5 as not" standard in terms of your opinions in this
6 case?

7 A. That is correct.

8 Q. Did you receive any information as
9 to the standard at issue in this case outside of
10 the plaintiffs' experts' reports?

11 A. I can't remember.

12 Q. So as you sit here today, the answer
13 is you don't know of any other place that you
14 would have seen that; true?

15 A. I think in some of the defense
16 expert reports where they were critiquing the
17 plaintiffs' experts reports, they talked about
18 that standard.

19 Q. Okay. When -- so other than --
20 other than other expert reports in this case, have
21 you received any other information about the
22 standard that is to be applied in this case?

23 A. I don't think so.

24 Q. Okay. When you saw in the

1 plaintiffs' experts' reports that -- strike that.

2 Let me ask another question.

3 You have read your -- strike that.

4 The five reports that are sitting
5 over there marked as Exhibits 1 through 5?

6 A. Yes.

7 Q. I've read those reports, and let me
8 see if I can sum up your end result of your
9 conclusions. Okay?

10 A. Okay.

11 Q. Out of the five Track 1 diseases
12 that we're dealing with -- Parkinson's, kidney
13 cancer, bladder cancer, NHL, leukemia -- your
14 opinion is that not a single one of those diseases
15 is causally related to any of the chemicals at
16 issue in this case at the exposure levels that
17 existed at Camp Lejeune; fair?

18 MS. JOHNSON: Objection to
19 form.

20 THE WITNESS: I conclude
21 that, yes, based on review of the
22 scientific evidence, the evidence does
23 not show that any of the chemicals at the
24 concentrations at Camp Lejeune caused any

1 of these five health outcomes.

2 BY MR. MANDELL:

3 Q. You might not have read -- strike
4 that.

5 So what you're saying is that, as
6 you understand it, there is not a single plaintiff
7 in this that has if -- strike that.

8 There is not a single plaintiff in
9 this litigation who has any one of these five
10 diseases that we've just talked about that you
11 would say should be entitled to any compensation
12 as a result of this statute that was passed, true?

13 MS. JOHNSON: Objection to
14 form.

15 THE WITNESS: I don't have --

16 MS. JOHNSON: And to the
17 extent that there anything privileged in
18 communication.

19 THE WITNESS: Well, I don't
20 have an opinion on compensation.

21 BY MR. MANDELL:

22 Q. But scientifically, you would say
23 that there is not a single plaintiff who was at
24 Camp Lejeune during the time period at issue in

1 this case -- strike that.

2 Do you know what the time period at
3 issue in this case is?

4 A. Oh, I've forgot. I did at one
5 point.

6 Q. When you say you did at one point,
7 what does that mean?

8 A. I mean, I remember looking at the
9 time at issue, but now I can't remember, as I sit
10 here.

11 Q. Did the time at issue in this case,
12 meaning the time period that's covered by the
13 statute, play any role in terms of your opinions
14 in the case?

15 A. No.

16 Q. Did you do any type of analysis in
17 any way in terms of what the levels of each
18 chemical were that existed at Camp Lejeune?

19 A. As I discussed in my report, I
20 relied on the levels that ATSDR put forth, but
21 also discussed how those were likely
22 overestimates. But even assuming those
23 overestimates, there still was not evidence that
24 exposures would be high enough to cause any of

1 these health outcomes.

2 Q. Let me break down, if I could, what
3 you just said.

4 First, you relied on the ATSDR
5 2007 -- strike that.

6 You relied on the ATSDR water
7 modeling that was done for the purposes of your
8 reports; true?

9 A. And -- and other things, yes.

10 Q. Okay. And what you're saying is --
11 strike that.

12 You -- my question originally was:
13 Did you do any type of analysis in terms of the
14 exposure levels that did exist in that water
15 modeling report in terms of -- strike that.

16 Did you do any type of analysis of
17 that water modeling report to determine what
18 levels existed at what times at Camp Lejeune?

19 MS. JOHNSON: Objection.

20 Form.

21 THE WITNESS:

22 (Reviews document.)

23 So I have in the section --

24 BY MR. MANDELL:

1 Q. Can you tell me what you're looking
2 at just so we can be on the same page?

3 A. I was getting there.

4 Q. Sorry.

5 A. In section 5 of all my reports, I
6 talk about the exposures at Camp Lejeune in two
7 places. One in the context of the epidemiology
8 studies and one just kind of more generally.

9 And I talk about Dr. Hennet's and
10 Dr. Spiliotopolous's review of the ATSDR methods
11 and also ATSDR's discussions of its own methods
12 talking about how it's, you know, essentially the
13 concentrations were -- were biased high. But then
14 also how, you know, NRC said something similar but
15 calculated what potential exposures could have
16 been at Camp Lejeune, and so I essentially based
17 on that.

18 This is the NRC 2009 document, and
19 they assume that a person was exposed to twice the
20 highest measured PCE or TCE in drinking water and
21 based on that assumption estimated what the
22 possible maximum exposure levels could have been.

23 Q. Do you -- when you say "NRC," do you
24 have any understanding of what NRC was basing its

1 foundational opinions on in terms of the levels of
2 the chemicals in the water at Camp Lejeune?

3 A. I believe it was based on the ATSDR
4 modeling.

5 Q. Right.

6 So back -- I think back to my
7 original question, which is: Did you review the
8 ATSDR water modeling charts that show what the
9 levels were in the water at Camp Lejeune at the
10 different periods of time?

11 A. I did look at that, yes.

12 Q. Okay. Did you do any type of
13 analysis of that in terms of what levels were in
14 the water at what time periods during the course
15 of the case?

16 A. I did not do that. Because
17 basically by relying on twice the maximum
18 measured, that means essentially this is twice as
19 high as anybody could have been exposed to, and
20 everybody else would have been below that. So
21 since there wasn't an issue with twice the highest
22 exposure, there wasn't going to be an issue with
23 exposures lower than that.

24 Q. We have talked a little bit about

1 this, but I want to just follow up on one issue,
2 which is: In terms of the creation of your
3 report, how was it that that report was created?

4 The physical reports that we are
5 looking at right now, Exhibits 1 through 5, how
6 were those created?

7 MS. JOHNSON: Objection to the
8 extent it goes to privileged
9 communications.

10 THE WITNESS: So I came up
11 with the scope and the outline of the
12 reports and what I wanted to look at and
13 what went in it.

14 And as we discussed earlier, I
15 delegated a lot of work to the junior
16 staff. And so what would happen is, for
17 example, they would do their research and
18 find the studies that were relevant. And
19 if there was a question as to the
20 relevancy of a study, if there was any
21 question with the junior staff, it would
22 come to me, and then I would decide
23 whether it was relevant or not.

24 We came up with the study

1 quality criteria and then had junior
2 staff review the studies and fill in
3 information about the studies in tables
4 on both the quality study characteristics
5 and results, and these were then checked.

6 And then we wrote text kind of
7 based on the tables and based on the
8 articles themselves and then did, you
9 know, the Bradford Hill assessment and
10 summarized agency reviews. Also
11 summarized mechanistic data.

12 I did not conduct a full
13 systematic review of systematic data but,
14 rather, gave a high level and a big
15 picture of that.

16 BY MR. MANDELL:

17 Q. So when you say "we went through and
18 did a Bradford Hill analysis," who is the "we"?

19 A. Well, it was done under my
20 direction.

21 Q. But who -- who would have actually
22 done it, meaning like the words in your report
23 that we have in front of us today?

24 MS. JOHNSON: Objection to the

1 point this goes to privileged
2 communications.

3 MR. MANDELL: I pretty
4 strongly disagree with that. I mean,
5 we're talking about the words in her
6 report. If -- and I'm not saying this.
7 If DOJ wrote those words in her report,
8 we have ability to ask.

9 MS. JOHNSON: Absolutely
10 wrong. No, that's not the case at all.
11 We're just hedging around the edges on
12 this. Do what he says.

13 MR. MANDELL: I understand
14 that.

15 MS. HURT: I know we're poking
16 and prodding the edges but...

17 BY MR. MANDELL:

18 Q. Yeah.

19 A. No one outside of Gradient wrote
20 anything in this report. In some cases, junior
21 staff may have drafted some tax -- text, but I
22 went over every single word many times in these
23 reports, and the final reports are mine.

24 Q. I understand that -- that you may

1 have gone over each of these reports many, many
2 times.

3 I guess my question is: When you
4 said "we did a Bradford Hill analysis," who, who
5 did what? Meaning did somebody other than
6 yourself physically write out the Bradford Hill
7 analysis and then you looked at it and said, yes,
8 I agree with it or might need to change this part
9 over here, might need to change this part over
10 here?

11 A. In -- I believe in some cases, I
12 wrote it. In other cases, someone else might have
13 taken a first stab and then I reviewed it.

14 Q. I see.

15 So is it fair to say that there are
16 some parts of this report you wrote and some parts
17 other people wrote that you approved; is that
18 fair?

19 MS. JOHNSON: Objection.

20 We're real close, kind of prodding real
21 close to the edge of being privileged.

22 MR. MANDELL: Again, I feel
23 pretty strongly about this. I believe
24 we're entitled to the answer. I mean,

1 that's pretty clear to me. It's not even
2 a close. I don't believe it's close
3 question, with all due respect.

4 MS. JOHNSON: (Nods head).

5 THE WITNESS: I would say in
6 some cases, other people drafted text
7 that I then went through and, you know,
8 made sure when I was reading the text and
9 looking at the tables and looking at
10 studies that it -- so in the end, I feel
11 that all these words are mine because I
12 went through them all.

13 BY MR. MANDELL:

14 Q. All right. Let me ask you first.

15 Do you believe -- strike that.

16 Were there different people who
17 wrote the different reports? Meaning like did you
18 have like a team of people that was doing
19 Parkinson's? Did you have a team of people that
20 was doing kidney? Did you have a -- were there
21 different people assigned to different diseases?

22 A. Yes, but sometimes those people
23 changed over time since I worked on this -- these
24 reports over several years.

1 Q. Fine.

2 I guess my question is, like, for
3 example, like did you have a kidney cancer team
4 that there might have been people filtering in and
5 out of that team, or whatever, but, generally
6 speaking, there was one group of people that was
7 assigned to that disease, so to speak?

8 Do you see what I'm saying?

9 A. It was more divided into toxicology
10 and epidemiology rather than by disease.

11 Q. Were there different people who were
12 assigned to different diseases, although there
13 might have been people assigned to epidemiology
14 and toxicology too? Meaning t-o-o also.

15 MS. JOHNSON: Objection to
16 form.

17 THE WITNESS: So there -- I
18 would have to go back, but I believe
19 that, for the most part, people worked on
20 different diseases. They just were --
21 they either worked on the toxicology part
22 or the epidemiology part, but I'm not
23 clear on anyone just specifically working
24 on one disease.

1 BY MR. MANDELL:

2 Q. Do you -- the next question that I
3 have is: Do you think -- (sneeze) -- bless you.

4 Do you think that a system in which
5 there are multiple people working on multiple
6 reports has any tendency to allow things to slip
7 through the cracks?

8 MS. JOHNSON: Objection.

9 Form.

10 THE WITNESS: Everything in
11 these reports was checked by two people
12 at least besides me, and so I would be
13 very surprised if something slipped
14 through the cracks.

15 BY MR. MANDELL:

16 Q. Okay.

17 MS. PLATT: Can we --

18 MS. JOHNSON: Counsel -- oh,
19 I'm sorry. I was going to say we have a
20 lunch order coming at a certain time.
21 So.

22 MR. MANDELL: What time?

23 MS. PLATT: It's already here.
24 Why don't we take our break for lunch?

1 You guys can get some lunch.

2 MR. MANDELL: I'm happy to.

3 Sounds good.

4 Just for the record I'm at 3
5 hours and 22 minutes on my clock.

6 THE VIDEOGRAPHER: The time is
7 12:51 PM. We're going off the record.

8 (Whereupon, at 12:30 p.m., a
9 luncheon recess was taken.)

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

AFTERNOON SESSION

(1:39 PM.)

JULIE E. GOODMAN, PHD

called for continued examination and, having been previously duly sworn, was examined and testified further as follows:

EXAMINATION (CONTINUED)

THE VIDEOGRAPHER: The time is 1:39 PM. We're going back on the record. Please proceed, counsel.

BY MR. MANDELL:

Q. Dr. Goodman, are there any diseases in which you believe you're not an expert on?

A. I mean, that's a hugely broad question.

I -- if you want to ask me about a specific disease, I'm happy to discuss it, but I can't list every disease that exists that I haven't worked on.

Q. Prior to this case, are any of these five diseases have you published literature on or done projects on? Excuse me. Yeah, five diseases. I'm sorry.

A. Yes.

1 Q. Could you tell me which ones?

2 A. Off the top of my head, I've
3 definitely worked on projects with Parkinson's
4 disease. I published on benzene in the Pliofilm
5 cohort. I published on PCE and NHL. I've looked
6 at formaldehyde and starting in
7 lymphohematopoietic cancers.

8 Q. Outside of -- I'm sorry. I
9 didn't -- have you already finished?

10 A. I guess I was just going to say,
11 I've also evaluated, you know, bladder and kidney
12 cancer in the context of other litigation
13 projects.

14 Q. Outside of Gradient, has anybody
15 recognized you as an expert in the epidemiology or
16 toxicology of any of these diseases?

17 A. I don't -- what do you mean "outside
18 of Gradient"?

19 Q. Has anybody recognized you as an
20 expert in any of the five diseases that we're
21 sitting here talking about: kidney cancer, bladder
22 cancer, Parkinson's disease, and the two blood
23 cancers?

24 A. I mean, who do you -- I'm not sure

1 what you mean by "anybody."

2 Q. Anybody.

3 A. I mean, I have my -- my board
4 certifications and I'm a fellow, and so that's a
5 recognition of my expertise in toxicology and
6 epidemiology. So I think there's a recognition
7 that I'm an expert on. If I, you know, evaluate
8 the science on a specific chemical and a specific
9 health outcome, my expertise is recognized.

10 Q. I think I had asked you this
11 question, but I want to make sure I fully
12 understand it.

13 With regard to each disease of the
14 five diseases, could you tell us who your go-to
15 person was for each of the five diseases?

16 MS. JOHNSON: Objection to
17 form.

18 THE WITNESS: There really --

19 BY MR. MANDELL:

20 Q. Meaning at Gradient.

21 A. So Denali Boon is my project
22 manager, and so she essentially has -- has
23 overseen all of these reports under my direction.
24 But in terms of a go-to person for each report, I

1 would say that there wasn't a particular go-to
2 person. It was more, as I said, that I came up
3 with the scope and the tasks, and people with
4 expertise in epidemiology or toxicology, they
5 would work under my direction.

6 Q. So, but like let's say you had an
7 issue with kidney cancer.

8 Is there a particular person you
9 would go to to say, I want to add this study or I
10 want to, you know, change this verbiage or that
11 type of thing?

12 A. So various people worked on various
13 combinations of chemicals and health outcomes.
14 And so if the person who worked on a particular
15 combination and I had a question or I wanted to,
16 you know, update the analysis, I might go to that
17 person, but I might also go to a separate person
18 as long as they had, you know, expertise in the
19 field and were able to -- if they had expertise in
20 that area.

21 Q. Is there like a chart somewhere that
22 details who was working on what chemical or what
23 disease?

24 A. No.

1 Q. So how would one -- how would you
2 know to say, well, there's this study in the
3 kidney cancer report that I think we need to
4 change? How would you know who to talk to to
5 change it?

6 A. Well, this is my report, and so if I
7 went through it and I saw that, that there needed
8 to be a change, I would make the change myself.

9 Q. I guess maybe it wasn't a precise
10 question.

11 Physically, you could do the change;
12 right?

13 A. Yes.

14 Q. Or you could ask somebody else to do
15 it; right?

16 A. Yes.

17 Q. And I'm assuming that there were
18 plenty of times when you would ask other people to
19 do that type of work; true?

20 A. Yes.

21 Q. So is there -- how would you know
22 who to talk to for a particular disease to say for
23 kidney cancer -- I'm just using that as an
24 example -- I would like to change this part?

1 Let's say you were busy. You were
2 going. You had something else you had to do, but
3 you wanted that part of the report changed.

4 Is there somewhere where you would
5 know, well, I know person A is working on kidney
6 cancer and person B is working on bladder cancer,
7 that type of thing?

8 A. While these are getting written, I
9 would know who was working on what, but at this
10 point in time, I can't remember who worked on
11 which.

12 Q. I see.

13 So -- so there was some type of
14 system in place at the time, but you just don't
15 remember that now because they were formalized a
16 while ago; true?

17 A. I mean, I don't know if you'd call
18 it a system. It was I had several people working.
19 There were toxicologists and epidemiologists and,
20 you know, there was work to be done and it was
21 split up among people. And then it had to be
22 QC'd, and so someone else that didn't work on it
23 would QC the work of someone that did, but then
24 that second person would also become

1 knowledgeable.

2 Q. The bottom line is: You just don't
3 remember who those -- what roles each person had,
4 but there were people in those roles; true?

5 A. Well, I guess I'm -- I'm not clear
6 what you're asking.

7 I had a staff.

8 Q. Let me ask it a different way.

9 There were certain staff members
10 that were assigned to, for example, certain
11 diseases or certain chemicals.

12 At the time you knew which people
13 were assigned to what diseases and chemicals, but
14 now you just can't remember because it was a
15 little while ago; is that -- is that fair?

16 A. Yes, but I would say that -- that
17 there was overlap in terms of -- of who worked on
18 what diseases and someone -- there would always be
19 at least two people that looked at every piece of
20 information that went in the report.

21 Q. Did you do any analysis of a
22 cumulative dose for any of the plaintiffs, for
23 any, like, plaintiff or proposed plaintiff in this
24 case?

1 A. I did not look at any individual
2 plaintiff data.

3 Q. Did you do any type of analysis in
4 terms of a cumulative dose in terms of what a
5 person at Camp Lejeune might be exposed to?

6 A. To the extent that some of the
7 plaintiffs' experts opined on what a cumulative
8 exposure was, I explained how that calculation was
9 done incorrectly and so only in that context.

10 Q. Okay. Would you -- you would agree
11 that your opinions in this case are that not a
12 single plaintiff at Camp Lejeune who has any of
13 these five diseases had their disease caused by
14 the water at Camp Lejeune; true?

15 MS. JOHNSON: Objection to
16 form.

17 THE WITNESS:
18 (Reviews document.)

19 My opinion is that I conclude
20 to a reasonable degree of scientific
21 certainty that the chemicals at issue in
22 this case in drinking water at Camp
23 Lejeune did not cause any of the health
24 issues at issue in this case.

1 BY MR. MANDELL:

2 Q. Right.

3 So if one were to accept your
4 position as being true, that would mean that not a
5 single plaintiff who was at Camp Lejeune who
6 developed Parkinson's disease, kidney cancer,
7 bladder cancer, non-Hodgkin's lymphoma, or
8 leukemia would have had those diseases caused by
9 the water at Camp Lejeune; true?

10 A. That is true.

11 Q. Okay. Did you receive any
12 compensation from the sale of Gradient to
13 Geosyntec?

14 A. Yes.

15 Q. And what was that compensation?

16 A. I am quite sure that is
17 confidential.

18 Q. Respectfully, could you tell us why
19 you think that that's confidential?

20 A. Because my manager said to all of
21 the owners that that was confidential information.

22 Q. Well, let's -- we can deal with that
23 at a break.

24 When we left off, I was -- I had

1 asked you, I believe, whether or not you thought
2 that having so many different people work on so
3 many different diseases and chemicals would have
4 had a tendency to create items slipping through
5 the cracks.

6 You remember that question?

7 A. Yes.

8 Q. Okay. What I'd like to do is -- you
9 have all five disease reports in front of you;
10 true?

11 A. Yes.

12 Q. Okay. I just want to take a look at
13 some of the different elements of some of the
14 reports. Okay?

15 A. Okay.

16 Q. So what I'm -- what I'm going to say
17 is: I'm going to give you, like, a page to look
18 at for a particular disease and then take a look
19 at it, and then I'm going to ask you a question.
20 Okay?

21 A. Okay.

22 Q. Okay. Can you take a look at C-32
23 in your kidney cancer report, which is the chart
24 that's towards the back. The charts.

1 Tell me whenever you're there.

2 A. I'm there.

3 Q. Okay. You see on the bottom of the
4 page it says "Bove 2024b"?

5 A. Yes.

6 Q. And you were doing a quality
7 assessment of the different studies; fair?

8 A. Yes.

9 Q. And do you see how under the
10 Covariates Considered, there are listed -- it's
11 listed as a strength. It says "Considered
12 quantitative bias from unmeasured smoking
13 'negative disease controls'; true?

14 A. Yes.

15 Q. And then could you take a look in
16 your bladder cancer report at page C-41.

17 Are you there?

18 A. Yes.

19 Q. Do you see how under the same Bove
20 study, now it's listed under a weakness, and it
21 says "Did not control for or consider" and the
22 first line is "smoking"?

23 A. Yes.

24 Q. Would you agree that that's an

1 inconsistency in terms of your review of the Bove
2 2024b report?

3 A. Wait. Let me.

4 (Reviews document.)

5 So I do not -- I do not actually
6 think it's a strength. I think maybe it was put
7 there originally because this analysis was
8 conducted, but if you actually look at the
9 analysis, it was not this kind of -- it was
10 nonsensical. So I wouldn't necessarily call that
11 a strength.

12 But I also believe if we look at
13 that Bove study, I would need to look at it, but I
14 think something was different for bladder and
15 kidney. And I can't remember what as I sit here,
16 but I remember there being a difference.

17 Q. Okay. How about -- let me ask you
18 this way.

19 You would agree that as written
20 here, though, it looks like one is under strength
21 and one is under weakness, and one you're saying
22 they did control for smoking and one you say they
23 didn't control for smoking in the same study;
24 true?

1 A. Just a second.

2 (Reviews document.)

3 No. For kidney cancer, it's saying
4 that there was a quantitative bias analysis that
5 was conducted, and for bladder cancer, it says it
6 didn't control or consider it. So what that's
7 saying, it wasn't done for bladder cancer.

8 Q. Okay. So what you're saying is you
9 believe 2024b used negative control diseases for
10 kidney cancer but not bladder cancer?

11 A. Is it possible to look at the study?

12 Q. Sure.

13 (Document marked for
14 identification as Exhibit 16.)

15 THE WITNESS: Thank you.

16 (Reviews document.)

17 BY MR. MANDELL:

18 Q. Please look at whatever pages you
19 want, but in effort to maybe speed things up, if
20 you could look at 107008-4, it might be what
21 you're looking for. It might not be, though.

22 A. (Reviews document.)

23 Q. I don't -- again, I don't mean to
24 interrupt you. If it's going to be a couple

1 minutes, maybe we can go off the record for it,
2 but if it's going to be, like, less than a minute,
3 take your time.

4 A. I think it should be less than a
5 minute.

6 Q. Okay.

7 A. (Reviews document.)

8 Q. Do you want to go off the record?

9 A. Sure.

10 MR. MANDELL: All right. Why
11 don't we go off the record.

12 THE VIDEOGRAPHER: The time is
13 1:56 PM. We're going off the record.

14 (A recess was taken.)

15 THE VIDEOGRAPHER: The time is
16 2:00 PM and we're going back on the
17 record. Please proceed, counsel.

18 BY MR. MANDELL:

19 Q. Dr. Goodman, have you had an
20 adequate amount of time to review the 2024
21 incidence study?

22 A. Yes.

23 Q. Did you find anything in there that
24 would differentiate bladder cancer from kidney

1 cancer?

2 A. I did not.

3 Q. Okay. So would you agree with me
4 that that is an inconsistency in your charts in
5 terms of the data quality section of your reports?

6 A. Yes, I would say that they're
7 different and I would say that I would, if I were
8 to do it right now, I would take it out of a
9 strength because the analysis was not -- was not
10 adequate.

11 Q. I see.

12 So what you're saying is, now that
13 there's been an inconsistency that's been pointed
14 out to you, one you put in strengths, which was
15 controlling for smoking, the other you put in
16 weakness for not controlling for smoking, and your
17 response to that would be to take the one that was
18 in the strength category and put it as a weakness;
19 right?

20 A. No. What I'm saying and I actually
21 think it's a little bit different in that I
22 basically put in here that this quantitative bias
23 analysis was conducted. So I'm trying to sort of
24 give this study credit for at least looking at it.

1 Whereas, I don't even talk about the quantitative
2 bias analysis when I talk about bladder cancer.

3 Q. Right, and let me ask you this
4 question.

5 Is it possible that somebody else
6 wrote those in there? Meaning two different
7 people put two different things in two different
8 parts of the report and that's why they're
9 different?

10 A. So generally for a study, you know,
11 and the reason why it has columns for the
12 chemicals is because I wanted to address the -- I
13 would generally have the same person looking at
14 the same study. It's possible -- actually, I
15 can -- I can only speculate as to why they're
16 different. So I won't say.

17 But I will say, in looking at this
18 now and after spending a lot of time looking at
19 the quantitative bias analysis, I would not say
20 that it is a strength of this study.

21 Q. My question was -- do you remember
22 my question?

23 A. No.

24 Q. Okay. My question was: Do you

1 think that a possibility for why this happened is
2 because you had different people working on
3 different sections of your report, and one person
4 might have looked at the study and thought
5 quantitative bias analysis is -- is using
6 unmeasured smoking negative controls disease
7 that's a strength, and one person might have
8 thought that that wasn't a strength?

9 And my question is: Is that a
10 conceivable possibility?

11 A. I -- I don't think it's likely.

12 I think it's more likely that when I
13 first reviewed this study, I considered that
14 analysis to be a strength because it was looking
15 at -- it was trying to account for smoking. And
16 then when I looked at it in more depth, I realized
17 that that analysis was not -- was not adequate.

18 Q. Okay. If you -- could you please --
19 you have the kidney report up?

20 A. Yes.

21 Q. Could you turn to C-31.

22 A. Yes.

23 Q. Do you see how under the right
24 side -- are you at C-31?

1 A. Yes.

2 Q. Okay. Do you see on the right side
3 it says Strengths of the study?

4 This is the ATSDR 2018b study we're
5 talking about.

6 A. Yes.

7 Q. Do you see how it says "Appropriate
8 consideration of latency" is a strength?

9 Do you see that?

10 A. Yes.

11 Q. Could you turn to your Parkinson's
12 disease report to page C-3. The chart C-3.

13 A. Yes.

14 Q. Could you look under Weaknesses?

15 A. Yes.

16 Q. For ATSDR 2018b?

17 A. Yes.

18 Q. Do you see how it says "Did not
19 consider latency period"?

20 A. Yes.

21 Q. Are you aware of anything in ATSDR
22 2018 -- or strike that.

23 ATSDR published the mortality study
24 in 2018; right?

1 A. Yes.

2 Q. Are you aware of an A and B?
3 There's just -- there's just one
4 study; right? You're not aware of two ATSDR
5 2018s; true? Relating to Camp Lejeune.

6 A. (Reviews document.)

7 MS. JOHNSON: There is no
8 mortality.

9 MR. MANDELL: I'm sorry. If
10 I'm --

11 MS. PLATT: You said
12 mortality, but you mean morbidity.

13 MR. MANDELL: Yeah. Sorry
14 about that.

15 THE WITNESS: Yes, 2018b is
16 the morbidity study. 2018a is -- was
17 basically some guidance on minimal risk
18 levels.

19 BY MR. MANDELL:

20 Q. Okay. You're talking about the B;
21 right?

22 A. Yes.

23 Q. The morbidity study?

24 A. Yes.

1 Q. Fine.

2 Is there anything in that 2018b
3 morbidity study that differentiated kidney cancer
4 from Parkinson's disease in terms of latency?

5 A. Yes.

6 Q. Okay. And what was it?

7 A. That in that study, it was stated
8 that virtually all the cancers developed over 10
9 years after being stationed or employed at CL. So
10 because of that, I concluded that the latency was
11 sufficient for cancer, but there was no discussion
12 about the occurrence of Parkinson's disease.

13 Q. Okay. I will come back to that one.
14 Can you take a look at the kidney
15 report page C-11.

16 Sorry. C-31. We're still at the
17 same -- same place.

18 Are you there?

19 A. Yes.

20 Q. Do you see under Strengths of ATSDR
21 2018b, it says "Direct chemical exposure
22 measurement (i.e., measured in the groundwater)"?

23 A. Yes.

24 Q. And then take a look at the

1 Parkinson's report under Exposure Assessment.

2 A. Yes.

3 Q. Do you see how it says "Weaknesses:
4 Indirect chemical exposure measurement"?

5 A. Yes.

6 Q. Is there something in the 2018
7 report that you believe is different between
8 kidney cancer and Parkinson's in terms of the
9 exposure assessment?

10 A. No. It says the same thing in
11 kidney. It says there's no direct chemical
12 exposure in individuals. So that's just the same
13 thing.

14 Q. So, but do you see under the
15 Strengths it says direct chemical exposure
16 measurement in groundwater?

17 A. The strength is that it was measured
18 in groundwater. The weakness is that there's
19 indirect measurement in individuals.

20 Q. I see. I didn't know what you were
21 talking about. Okay. Fine.

22 Let me ask you about another one.

23 Do you see how in the -- if you look
24 at kidney report under C-27.

1 Do you see how this is Bove 2014b
2 and it says "Strengths: Controlled for occupation
3 (as a proxy for other potential chemical
4 exposures)" and "Considered smoking using negative
5 disease controls"?

6 A. Yes.

7 Q. And then if you look at Parkinson's
8 page C-1, I think you might have -- you said it's
9 2014a there, but I think you might have meant B
10 because it's the civilian study. But you tell me
11 if I'm wrong.

12 A. Yes, I -- I labeled the A and B
13 depending on when I first discussed the study in
14 the report.

15 Q. Sure.

16 A. So they might not be the same.

17 Q. But do you see how it says
18 "Strengths: Controlled for: age, sex, race, and
19 occupation (as a potential proxy for other
20 chemical exposures)"; and then in Parkinson's
21 under Weaknesses, you say "Did not consider or
22 control for," among other things, smoking and
23 other potential occupational exposures?

24 A. Okay.

1 (Reviews document.)

2 Sorry. What was your question?

3 Q. My question is: Is that an
4 inconsistency?

5 A. I do not believe so.

6 Q. Why?

7 A. Well, I think under both, it says
8 they controlled for age, sex, and sex and
9 occupation --

10 Q. Right.

11 A. -- under Strengths under both.

12 And then under Weaknesses for both
13 it says, you know, "Unclear whether occupation was
14 analyzed in a time-varying manner."

15 Q. But does it say anywhere where it
16 says "unclear"?

17 You just used the word "unclear";
18 right?

19 A. Yes, in the Parkinson's report, I
20 used the word "unclear"; and then in the Bove, I
21 said it was not included in a "time-varying
22 manner."

23 Q. Maybe I'm missing it.

24 Where does it say "unclear"?

1 Oh, I see. I see. I see.

2 But in the sentence above that, it
3 says other occupational exposures as a weakness
4 did not control for that?

5 A. Well, I think in --

6 Q. In one you're saying it's a strength
7 that they considered these things; right?

8 A. So if you look under Parkinson's, it
9 says they controlled for that in internal
10 comparisons. And then a weakness is that in
11 comparison to the U.S. population, it didn't
12 consider it. So it's talking about comparisons
13 with two different things, two different groups.

14 Q. But you're talking about the same
15 study; right?

16 A. Yes.

17 Q. And is it your testimony that there
18 is something different in the Bove 2014b study
19 with regard to Parkinson's disease as opposed to
20 kidney cancer?

21 A. I would have to look at the study.

22 MR. MANDELL: Okay. Can you
23 mark that.

24 THE COURT REPORTER: Exhibit

1 17.

2 (Document marked for
3 identification as Exhibit 17.)

4 THE WITNESS:

5 (Reviews document.)

6 BY MR. MANDELL:

7 Q. Should we go off the record? Is it
8 going to take a minute?

9 MS. JOHNSON: It's up to you.

10 THE WITNESS: I don't know.

11 MR. MANDELL: Why don't we go
12 off the record.

13 THE VIDEOGRAPHER: The time is
14 2:13 PM. We're going off the record.

15 (A recess was taken.)

16 THE VIDEOGRAPHER: The time is
17 2:17 PM. We're going back on the record.
18 Please proceed, counsel.

19 MR. MANDELL: Thank you.

20 BY MR. MANDELL:

21 Q. Have you had a chance to look at the
22 study?

23 A. Yes.

24 Q. And is there anything that you found

1 that is -- that is different between the two
2 diseases that we were talking about in terms of
3 the issues that we were talking about?

4 A. Well, for one, kidney was considered
5 disease of primary interest and Parkinson's was
6 considered a disease of secondary interest.

7 Q. Right.

8 I'm talking about the issues in the
9 section C of your reports.

10 A. So, again, the wording is slightly
11 different, but I'm not sure that it's
12 inconsistent.

13 Q. But in one you have it as a
14 strength; right? And in one you have it as a
15 weakness; true?

16 A. No. In both I have it as a strength
17 and then in both I have it as a weakness. It's
18 just worded a little differently.

19 Q. Where -- where is it in the strength
20 category that they -- in Parkinson's disease that
21 they controlled for smoking or that they used
22 occupation as a proxy for other potential chemical
23 exposures?

24 A. (Reviews document.)

1 So it says under Strengths that it
2 controlled for occupation and internal
3 comparisons.

4 Q. Uh-huh. So are you done? I don't
5 want to cut you off.

6 A. And it says that it did not adjust
7 for smoking in analyses of Parkinson's disease.

8 Q. Right.
9 Is that inconsistent?

10 A. I'm not seeing where it is adjusting
11 for smoking for Parkinson's -- Parkinson's
12 disease.

13 Q. So your testimony is that as you
14 read 2014b, it adjusted for smoking for kidney but
15 not for Parkinson's?

16 A. (Reviews document.)
17 I think that when I was talking
18 about kidney cancer, again, I was making the point
19 that it used this idea of negative controlled
20 diseases for kidney cancer.

21 Q. Right.
22 But for one you list it as a
23 strength and one you list it as a weakness, and
24 you say the opposite fact; true?

1 A. (Reviews document.)

2 I -- it appears that there are a lot
3 of tables in the supplement.

4 Q. If you need to go off the record
5 again, we can do that. I'm just trying to give
6 you enough time.

7 A. I mean, I would have to spend some
8 more time thinking about this, but, I mean, the
9 bottom line is that it wasn't adjusted for smoking
10 in either analysis.

11 Q. So, but for one you put it as a
12 strength and said they did consider smoking using
13 negative disease controls; true? In the kidney
14 cancer report?

15 A. Yeah, I said it used negative
16 controlled diseases and that's how it considered
17 smoking.

18 Q. So is that an error in the kidney
19 cancer report is what you're saying?

20 A. I think I was -- I believe that is
21 an error.

22 Q. Okay. Do you think that that error
23 could have occurred because there were multiple
24 people working on multiple diseases and it could

1 be that somebody looked at the fact that they
2 controlled using these negative controlled
3 diseases for smoking and somebody else thought
4 maybe that wasn't a strength and that's why
5 they're different?

6 A. I think I looked at all of these
7 tables multiple times and I somehow did not notice
8 this mistake in reviewing this table here.

9 Q. Well, would you have specifically
10 said to somebody in one report for like for kidney
11 cancer, for example, I think you should put in
12 negative smoking -- negative disease controls as a
13 strength, and then for Parkinson's say to a
14 different person, I think you should say that as a
15 weakness they didn't control for smoking?

16 I mean, those are two different
17 things; right?

18 A. So I have in the Method section of
19 my report what is a strength and what is a
20 weakness, and I think in some cases a study might
21 consider a factor but then not adjust for it in
22 the statistical analysis and, in general, I
23 considered that a strength.

24 And I think that on a first review,

1 I thought that -- I mean, you could give this -- I
2 tried to always lean in the direction of -- of
3 saying something is a strength versus a weakness.

4 So the fact that they looked at all,
5 I sort of, I think, originally put as a strength,
6 but then, you know, the fact that this doesn't
7 actually -- it's not a very valid method. So I
8 think I then, on reflection, decided I shouldn't
9 give that factor the benefit of the doubt.

10 Q. And let me ask, I mean, I want to
11 ask you two follow-up questions on that.

12 The first one is: I'm not asking
13 about actual substantive merit here. I'm talking
14 more about process. Meaning I'm not asking you
15 for right now whether or not it's a strength or
16 it's a weakness.

17 What I'm asking you is: It looks
18 like -- and you said you want to spend more time
19 and I understand that.

20 But what I'm saying is: If you look
21 at this, you have in one of the diseases smoking
22 being controlled for as a strength and in one
23 saying it's not controlled for as a weakness.

24 Is that a fair statement as I just

1 said it?

2 A. No.

3 Q. Okay. Can you take a look at in
4 your kidney report page C-19.

5 And I'm asking you about the Zhao.
6 It's at the very bottom.

7 Do you see that?

8 A. Yes.

9 Q. Okay. So under Study Population, it
10 says "Weaknesses: No major weaknesses"; true?

11 A. Yes.

12 Q. And look at your bladder report.
13 Page C-24. Sorry.

14 Do you see under Study Population?

15 A. Yes.

16 Q. It says "Weaknesses: Unknown loss to
17 follow-up"?

18 A. Yes.

19 Q. Would you agree that that's
20 inconsistent?

21 A. Yes.

22 Q. Do you think that that inconsistency
23 could have been because you had multiple people
24 working on different multiple parts of the report

1 and different diseases, and one person might have
2 thought that their study population had no major
3 weaknesses and another person might have thought
4 there was an unknown loss to follow-up as a
5 weakness?

6 A. (Reviews document.)

7 I'm -- I'm not sure how to explain
8 it. It just looks like an oversight.

9 Q. Well, you wouldn't have told two
10 different people to write two different things in
11 terms of that issue for the same study; right?

12 A. That is correct.

13 Q. Okay. So can we take off the table
14 that you told whoever wrote that part of the
15 report to write that part of the report in there?

16 MS. JOHNSON: Objection.

17 Form.

18 BY MR. MANDELL:

19 Q. Do you understand the question?

20 A. No.

21 Q. Sure. There may be different
22 reasons why there was this inconsistency in your
23 charts; right?

24 There's different explanations for

1 it, but can we take off the table one of the
2 explanations, which is that you would have told
3 two different people to write two different
4 things?

5 A. That is correct.

6 Q. Okay. And -- great.

7 Can you take a look at your kidney
8 report page C-25. Tell me whenever you're there.

9 A. I'm there.

10 Q. Okay. And I'm talking about the
11 Lipworth case study.

12 A. Yes.

13 Q. That's the lawyer. I'm talking
14 about the Lipworth study. And under Strengths in
15 the kidney cancer report, it says "Appropriate
16 consideration of latency (analysis by duration 10+
17 years and 5+ years of exposure."

18 True?

19 A. Yes.

20 Q. And then in the bladder report, it
21 says page C-31.

22 Excuse me. I'm sorry. I'm so
23 sorry. The NHL report page C-21. Or you can look
24 at bladder.

1 A. You're not messing around with these
2 clips. (Laugh).

3 Q. That's double-sided.

4 A. I know.

5 Okay.

6 Q. Can you see under Weaknesses under
7 Temporality it says "No consideration of latency"?

8 A. Yes.

9 Q. Does that appear to be an
10 inconsistency to you?

11 A. I would have to see if -- if
12 analyses were done differently for NHL and for
13 kidney cancer to see if that was an inconsistency.

14 Q. Okay. Well, I don't want to take
15 too much time going through this, but on its face,
16 they appear to be inconsistent; is that true?

17 A. They're --

18 MS. JOHNSON: Objection.

19 Form.

20 THE WITNESS: They're
21 different, but it might just be because
22 something different was done for the
23 different diseases.

24 BY MR. MANDELL:

1 Q. Okay. Could you take a look at your
2 report, the actual report, page 45.

3 A. Which report?

4 Q. That's a good question. Kidney
5 cancer.

6 Tell me -- sorry. Page 45.

7 Are you there?

8 A. Yes.

9 Q. Under Temporality, do you see how it
10 says:

11 "All of the studies had documented
12 exposures prior to the onset of the disease"?

13 A. Yes.

14 Q. And then if you look at your
15 Parkinson's report at page 39, just under the
16 Temporality section.

17 A. (Reviews document.)

18 Yes.

19 Q. Do those appear to be inconsistent
20 in any way to you?

21 A. No.

22 Q. Okay. Is there something different
23 about Parkinson's disease with regard to the
24 temporality?

1 A. Well, this is in the Parkinson's
2 report. This is specifically talking about ATSDR
3 2018.

4 Q. Correct.

5 A. And as it says in the other report,
6 that ATSDR didn't consider latency in its analyses
7 but stated virtually all participants with a
8 confirmed cancer of interest developed their
9 cancers 10 years or more after they were first
10 stationed to work at either base.

11 So because of that sentence, I
12 concluded that temporality was -- was likely not.

13 Q. So are they inconsistent internally?

14 MS. HURT: Objection. Form.

15 THE WITNESS: I wouldn't say
16 inconsistent. I would say it's different
17 for cancer and Parkinson's.

18 And may I clarify an answer
19 from earlier?

20 BY MR. MANDELL:

21 Q. Sure.

22 A. So when you were asking what's most
23 likely to have occurred across reports, what I
24 believe happened is that when QCing a study,

1 someone might have found a mistake in terms of
2 saying loss to follow-up versus no weaknesses and
3 then that -- that correction didn't get corrected
4 across all reports, which is still a mistake, but
5 I believe that is most likely why that happened.

6 Q. But you have no actual evidence for
7 that; right?

8 A. I do not.

9 Q. And to the extent that there are
10 other inconsistencies in the reports, would your
11 explanation be the same as the couple of
12 inconsistencies that we've pointed out so far?

13 Meaning so we don't go through every
14 single one, if there was further inconsistencies
15 found, would your explanation for why they
16 occurred be the same?

17 MS. JOHNSON: Objection.

18 Form.

19 BY MR. MANDELL:

20 Q. Do you understand the question?

21 A. I think some of the perceived
22 inconsistencies aren't actually inconsistent. In
23 the case where there actually is a true
24 inconsistency, I believe that is probably the most

1 likely explanation.

2 Q. But so to answer my question: To
3 the extent that there are other inconsistencies
4 found in your reports, if there was a true
5 inconsistency, as you called it, would you agree
6 that you don't know the reason why that would have
7 occurred?

8 You can just speculate like what you
9 were just doing; true?

10 A. That is true but --

11 Q. Okay.

12 A. -- I do not believe there should be
13 many inconsistencies.

14 Q. We had marked at the beginning of
15 the deposition your deposition Schedule A.

16 Do you have that over there?

17 MS. JOHNSON: What Schedule A?

18 MR. MANDELL: I think it's --

19 I think it might be Exhibit 6.

20 MS. JOHNSON: No, that's not

21 Exhibit 6.

22 MR. MANDELL: Exhibit 7.

23 MS. JOHNSON: Thank you.

24 BY MR. MANDELL:

1 Q. All set?

2 A. Yes.

3 Q. Okay. And so have you seen this
4 document before?

5 A. (Reviews document.)

6 I believe so, yes.

7 Q. And would you agree with me --

8 A. Yes.

9 Q. Strike that.

10 Page -- it's the page that starts
11 with "Schedule A" at the top.

12 Are you there?

13 A. Yes.

14 Q. There were a number of documents
15 that we requested that you provide to your counsel
16 and then they were to provide to us, and it starts
17 on page 4 and there are 20 or -- excuse me -- page
18 5, and there were 21 different separate items that
19 we requested.

20 Are you aware of that?

21 A. Yes.

22 Q. And did you --

23 MS. JOHNSON: Objection.

24 Form. There's numbering inconsistency

1 you might want to mention.

2 BY MR. MANDELL:

3 Q. Okay. There were a number of
4 different requests that we made, and you saw all
5 of them; true?

6 A. Yes.

7 Q. Did you provide all documents that
8 you are aware of that was requested by this
9 Schedule A to your lawyers?

10 A. Yes.

11 Q. Are there any that you didn't
12 provide?

13 A. No.

14 Q. There were several letters that we
15 received that detailed materials that you were
16 relying on for your opinions. They call them
17 Materials Considered List or Materials Relied Upon
18 List?

19 A. Yes.

20 Q. Do you understand what I'm talking
21 about?

22 A. Yes.

23 Q. Okay. There was a letter dated
24 February 14, 2025 from Attorney Platt and it

1 detailed that the reliance list for experts,
2 including yourself, included what the Bates
3 numbers were Phase 2 USA 1 through 31, and I think
4 it was the Rosenfeld study?

5 A. Yes.

6 Q. Did you review that and was that
7 part of your Materials Considered List?

8 A. I believe so.

9 Q. Okay. Other than that study, is the
10 Materials Considered List that you are putting
11 forth as all of the materials that you looked at
12 in this case found in your reports?

13 A. I believe we put together another
14 list with other documents that I considered.

15 Q. Okay. Could you tell me what was on
16 that list?

17 A. I can't remember.

18 Q. Okay. When did you do that?

19 A. I think it was relatively recently.

20 Q. Is it the documents that were
21 responsive to the Schedule A, or are you talking
22 about a separate list of materials that you
23 considered?

24 A. I can't remember when I made the

1 list.

2 Q. Are there documents that are not on
3 this February 14, 2025 letter with the Rosenfeld
4 study and/or in your reports that you considered?

5 A. I think there were some other papers
6 I reviewed and I thought we made a list of them,
7 but I can't remember the details of that or where
8 that list is.

9 Q. Do you know what other papers you're
10 referring to?

11 A. Well, I think, for example, some of
12 the -- the plaintiffs' expert reports that I don't
13 cite in my -- in my report.

14 Q. Okay. Anything else?

15 A. It would all be on that list. I
16 just can't remember.

17 Q. Okay. You did receive the
18 supplemental report of -- on Camp Lejeune water
19 contamination and EPA ban of TCE and PCE by
20 Dr. Steven Bird.

21 Do you remember that?

22 A. I would have to see it.

23 Q. Do you remember reviewing a report
24 by Dr. Steven Bird with regard to the EPA ban of

1 TCE and PCE generally?

2 A. Possibly. I review a lot of
3 reports, and I know I reviewed at least one --
4 well, several Dr. Bird reports. I cannot remember
5 if I read that one.

6 Q. You have not produced any substance
7 in terms of a report dealing with the EPA ban that
8 just occurred, true, with regard to TCE and PCE in
9 this case?

10 A. I do discuss it in my Parkinson's
11 report in my critique of Dr. Cannon's opinion.

12 Q. Okay. Other than that?

13 A. No.

14 Q. Have you -- has Gradient and/or you
15 been hired by any entity to write either
16 publications or speak publicly in opposition to
17 the EPA's ban of TCE and PCE?

18 A. I don't believe so.

19 Q. So to the best of your knowledge,
20 you're not aware of anybody from Gradient who has
21 taken a position publicly saying that the banning
22 of PCE and TCE was not appropriate; is that fair?

23 A. Not as I sit here.

24 Q. Okay. Do you believe that the

1 banning of TCE and PCE, as was described in
2 those -- those Federal Register documents, is
3 correct?

4 MS. JOHNSON: Objection to
5 form.

6 THE WITNESS: I think that's
7 a policy decision, not a scientific one.

8 BY MR. MANDELL:

9 Q. Do you have any scientific disputes
10 -- have you read the documents?

11 A. I've read parts of them.

12 Q. Okay. Was there any part of your
13 review of those documents that you disagreed with
14 in any way scientifically?

15 A. Well, the ban is based on overly
16 conservative assumptions about both exposure and
17 toxicity, and so to the degree that that resulted
18 in an overestimates of risk, that with different
19 -- with different conditions of use, I -- my
20 opinion is essentially that EPA overestimated
21 risks with various conditions of use, but I found
22 it notable that none of those conditions of use
23 were drinking water.

24 Q. Okay. So is anything like -- strike

1 that.

2 Is anything in the works in terms of
3 publications that you have that you intend to make
4 your positions on the EPA ban of TCE and PCE
5 known?

6 A. No.

7 Q. The comment that you just made about
8 the overly conservative exposure that you found in
9 there, what is your testimony in terms of what
10 impact that has on the actual substance of the
11 ban, as you read it?

12 A. It's my understanding that EPA
13 concluded that certain conditions of use resulted
14 in unreasonable risk and that and, I mean, perhaps
15 there were other aspects that went into the
16 decision. I don't know and I don't want to speak
17 to that.

18 Q. Okay. Did you find certain other
19 ones that didn't suffer from that issue as you are
20 describing it?

21 A. In terms of exposure, I didn't
22 really evaluate that.

23 Q. Okay. Any other critiques that you
24 have on the EPA's ban of TCE and PCE, other than

1 what you've talked about so far?

2 A. Well, as I said, it's really a
3 policy decision and not necessarily a scientific
4 one, and EPA chose to use very conservative
5 overestimates of risk, and those were relied on in
6 the TSCA evaluation.

7 Q. So, but let me first off.

8 Do you have any other criticisms,
9 other than what we've already talked about,
10 because you already mentioned that; right?

11 A. Yes.

12 Q. Okay. Anything else?

13 A. Well, as I said, I haven't really
14 reviewed it in detail. So I have no other
15 opinions as I sit here.

16 Q. As you sit here today, is there
17 anything else that you can think of on that issue?

18 A. Nothing comes to mind.

19 Q. Okay. In your billing, there is --
20 there are what is titled "Attachments" to your
21 contract with between DOJ and Gradient.

22 You produced those to your counsel
23 and they were produced to us.

24 Are you aware of that?

1 A. Yes.

2 MS. JOHNSON: Objection.

3 Foundation.

4 BY MR. MANDELL:

5 Q. Okay.

6 MR. MANDELL: What's that?

7 MS. JOHNSON: Objection.

8 Foundation. You said -- I couldn't quite
9 pick up that last part.

10 MR. MANDELL: Oh.

11 BY MR. MANDELL:

12 Q. There are contracts that you have
13 with DOJ; true?

14 A. Yes.

15 Q. And in those contracts, there is
16 listed certain attachments.

17 Are you aware of that?

18 A. Yes.

19 Q. And there is an attachment listed
20 that says "See Attachment Number 2 Statement of
21 Work and Attachment Number 3 Schedule Rate and
22 Cost."

23 Are you aware of those attachments
24 to your contract with DOJ?

1 A. I honestly can't remember the
2 details of the contract right now.

3 Q. All right. Well, the reason why I'm
4 asking is because it looks like in the materials
5 that I've seen that there is an Attachment 3 in
6 the materials, but I never saw any Attachment 2.

7 Do you know what Attachment 2
8 "Statement of Work" is?

9 A. No.

10 Q. Okay. Do you know who would know
11 that?

12 A. I don't know. I don't know if it
13 was just something that got overlooked. I have no
14 idea.

15 Q. All right. Just to summarize on
16 this issue.

17 The entirety of the materials
18 considered that you would testify that you
19 utilized in this case are: (1) in your five
20 reports, (2) in the letter we talked about with
21 Rosenfeld, and (3) to the extent there was some
22 new -- there was a new letter that you worked on
23 with your attorneys in terms of adding stuff like
24 some of the plaintiffs' expert reports.

1 There is nothing else; true?

2 A. That is true.

3 Q. Would you agree with me that in
4 terms of statistical significance that you agree
5 that results should not be dichotomized in terms
6 of significant and not significant as a black and
7 white rule?

8 MS. JOHNSON: Objection to
9 form.

10 THE WITNESS: Statistic --
11 statistical significance is only one
12 thing that should be considered when
13 evaluating associations in epidemiology
14 studies.

15 BY MR. MANDELL:

16 Q. Right.

17 You use a weight-of-the-evidence
18 approach and one factor of that is statistical
19 significance; true?

20 A. Yes.

21 Q. But you would never -- you would not
22 agree with anybody that chose to take the approach
23 that if something isn't statistically significant
24 that means it shouldn't be given any weight; true?

1 A. Well, the weight of a result should
2 be entirely based on the methods used to obtain
3 that result. So, for example, if confounders were
4 not adjusted for or there was a bias sample
5 selection, then you would give less weight to the
6 results. The weight has nothing to do with what
7 the actual result is.

8 Q. So would you agree with my question,
9 which is: You would -- you would not advocate for
10 a position in which something -- some study is
11 rejected simply because it's not statistically
12 significant; true?

13 A. That is true.

14 Q. Okay. And in your report, you cite
15 an article by a Dr. Savitz; true?

16 A. Yes.

17 Q. And, for example, in that article,
18 it says if you have a study with a hazard ratio of
19 1.3 and a 95 percent confidence interval of 0.96
20 to 1.75, that would be something you would want to
21 look at in terms of what weight to give it based
22 off of other factors; true?

23 A. I'm sorry. Can you show me where
24 you're reading from?

1 Q. Yeah. I'm going to get it for you.

2 A. Thank you.

3 THE COURT REPORTER: Exhibit

4 18.

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

7 THE WITNESS: Thank you.

8 BY MR. MANDELL:

9 Q. Do you see in the left-hand side
10 there's a paragraph that says "For example"?

11 A. Yes.

12 Q. And it says:

13 "For example, in a recently
14 submitted manuscript, we noted that X exposure was
15 associated with a hazardous ratio of 1.3 with a
16 95% confidence interval of .96 to 1.75 for Y
17 outcome. Using dichotomous significance testing
18 for significance could lead to an interpretation
19 of 'no effect.' A more appropriate interpretation
20 would be that X exposure was modestly associated
21 with Y outcome, but the data were statistically
22 consistent with parameter values ranging from
23 little or no effect to a considerable increase in
24 risk."

1 Do you see that?

2 A. I see that.

3 Q. Would you agree with that analysis?

4 A. I -- I would not say it was modestly
5 associated, but I completely agree where he says
6 the data are consistent with values ranging from
7 little or no effect to an increased risk. So, I
8 mean, he's basically acknowledging that it is
9 consistent with no effect at all.

10 Q. Okay. That's how -- you read that
11 sentence to mean that he's admitting that there's
12 no effect?

13 A. No, that he is not claiming that
14 this is necessarily supporting an association.
15 He's saying it either supports something ranging
16 from no effect to an increase in risk.

17 Q. Right.

18 Meaning he's not using a dichotomous
19 system in terms of analyzing the study. He is
20 saying you got to look at it for what it is, which
21 is exactly what I read; true?

22 A. Well, by saying something is not
23 statistically significant, even if you're going to
24 call it dichotomous, you are saying that it's

1 either not supportive of risk or it is and you
2 can't tell because it's not statistically
3 significant, and that's -- that's what he's
4 saying.

5 Q. Okay. So is what you're
6 interpreting this at in lay terms him saying that
7 you shouldn't even look at this study basically
8 because you don't know one way or the other what
9 it is?

10 A. Well, again, as I said, you should
11 always look at a study. This isn't to say you
12 throw out data.

13 What it's saying is and what he's
14 saying -- and I believe we're in agreement -- is
15 that you can't automatically assume that X doesn't
16 cause Y because it's not statistically
17 significant. What you can assume is that it
18 either doesn't cause Y or it might cause Y.

19 Q. Right.

20 A. That's what he's saying.

21 Q. And in the same vein, you can't say
22 it doesn't cause Y because it could be both; true?

23 A. It could be either.

24 Q. Right.

1 Meaning you can't -- you shouldn't
2 look at this study and say, well, it's not
3 statistically significant, therefore, it's
4 evidence of a null finding; true?

5 A. It is -- it's evidence that -- it's
6 basically not informative on its own because it
7 could either support no effect or an effect.

8 Q. But you would never take a study
9 with this scenario and say that is supportive of a
10 null effect; true?

11 A. What I would say is exactly what he
12 said is that it does not necessarily provide
13 evidence on its own for an association because it
14 could also support a lack of association.

15 Q. Okay. I want to ask you now about
16 some governmental agency findings with regard to
17 the chemicals at issue in this case. Okay?

18 A. Okay.

19 Q. Okay. First of all, what is IARC?

20 A. The International Agency for
21 Research on Cancer.

22 Q. And what do they do?

23 A. Among other things, they conduct
24 hazard assessments of agents and cancer.

1 Q. Okay. EPA does that too?

2 A. Yes.

3 Q. NTP?

4 A. Yes.

5 Q. ATSDR?

6 A. Yes.

7 Q. Other governmental entities too?

8 A. Yes.

9 Q. Would you agree with me -- and I'm
10 just going to go chemical by chemical. Okay?

11 Would you agree with me that the EPA
12 has said that TCE is categorized as carcinogenic
13 to humans by all routes of exposure?

14 A. (Reviews document.)

15 Yes.

16 Q. Would you agree that the EPA has
17 said that based on the weight of the evidence when
18 accounting for both these -- both these
19 authoritative assessments and the results of EPA's
20 meta-analysis and in accordance with EPA
21 guidelines for carcinogenic risk assessment, EPA
22 determines that TCE is carcinogenic to humans?

23 A. I don't -- I don't know what
24 document you're reading from.

1 Q. While we're getting that, let me ask
2 you about something else.

3 Let me back up for one second.

4 For the EPA 2000 -- the first one
5 that I talked about carcinogenic to humans, do you
6 agree with that?

7 MS. JOHNSON: Objection.

8 Form. "That."

9 BY MR. MANDELL:

10 Q. Do you agree with the statement:
11 Following EPA 2005B guidelines for carcinogenic --
12 carcinogen risk assessment, TCE is characterized
13 as carcinogenic to humans by all routes of
14 exposure?

15 Do you agree with that sentence?

16 A. I agree that based on its framework,
17 USEPA characterized TCE as carcinogenic in humans
18 by all routes of exposure.

19 Q. Right.

20 But do you agree with that?

21 A. (Reviews document.)

22 I think that epidemiology evidence
23 provides support for an association between kidney
24 cancer and very high occupational TCE exposures,

1 and so based on that I conclude that TCE can cause
2 kidney cancer, which would mean that it's
3 carcinogenic.

4 Q. So just so we can have a clean
5 question and answer.

6 Do you agree with that sentence from
7 EPA?

8 A. I did not evaluate all exposure
9 routes, but I agree with EPA that it could be
10 carcinogenic to humans.

11 Q. Okay. When you say you didn't
12 evaluate all exposure routes, what do you mean by
13 that?

14 A. I mean that there are clear
15 inhalation exposures in some occupational studies
16 and it's assumed that there are -- there are
17 dermal exposures too, but I don't know how deep
18 the evidence goes in terms of routes of exposure
19 in these studies.

20 Q. Did you consider any type of
21 inhalation or dermal exposures relating to your
22 work on the Camp Lejeune case?

23 A. I considered that the studies that
24 evaluated TCE looked at very high exposures and

1 essentially regardless of the route those
2 exposures were much higher than potential
3 exposures at Camp Lejeune.

4 Q. And I'm going to -- I'm going to ask
5 you about that in a little bit, hopefully.

6 My -- my question is: When you were
7 doing your analysis of the Camp Lejeune case that
8 we're dealing with, did you consider in your
9 opinions and do analysis of three -- those three
10 routes of exposure -- ingestion, inhalation, and
11 dermal -- or did you just look at ingestion, for
12 example, or something else?

13 A. I assumed that exposures at Camp
14 Lejeune were via those three exposure routes.

15 MR. MANDELL: Okay. I was
16 going to mark this as the next exhibit.

17 THE COURT REPORTER: Exhibit
18 19.

19 (Document marked for
20 identification as Exhibit 19.)

21 BY MR. MANDELL:

22 Q. You had asked me -- Exhibit 19.

23 You had asked me where I was getting
24 the wording from in one of the sentences that I

1 read, and if you look at page -- the page 252,
2 it's in the top paragraph. And on the right-hand
3 side about five lines up, it says "Based on."
4 That sentence.

5 A. (Reviews document.)

6 What was the question?

7 Q. Do you agree with that sentence?

8 A. Well, I think this doesn't really
9 reflect EPA's analysis that indicated associations
10 with kidney cancer and the associations with NHL
11 and liver cancer were -- they were less confident
12 in those associations, but I agree with the kidney
13 cancer.

14 Q. Well, in this, does it say anything
15 about the difference between kidney and NHL and
16 liver in the sentence that I was talking about?

17 A. Well, it just says there are
18 positive associations.

19 Q. Right.

20 And you agree with that for kidney
21 cancer; true?

22 A. Yes.

23 Q. So you would agree with that
24 sentence; is that fair?

1 A. Well, I just said I don't agree
2 about the NHL and liver cancer and, again, that's
3 not consistent with what EPA itself says about
4 those cancer types.

5 Q. I don't mean to belabor this point,
6 but that sentence doesn't mention anything about
7 NHL and liver; true?

8 A. That first sentence says NHL kidney
9 cancer and liver cancer.

10 Q. No, no.

11 The sentence that I asked you to
12 read, based on the weight of the evidence when
13 accounting for both of these authoritative
14 assessments in the results of the meta-analysis;
15 right?

16 A. I'm assuming the meta-analyses are
17 referring to the meta-analyses in the first
18 sentence which mention all three cancers.

19 Q. Okay. So bottom line is you agree
20 with it for kidney cancer but not the other two;
21 is that what you're saying?

22 A. Well, what I'm saying is that EPA
23 itself says the evidence is not as robust for the
24 other two.

1 Q. Well, and I'm going to -- I'm going
2 to, again, hopefully, get to that in a little bit,
3 but I'm just talking now, generally speaking,
4 about the chemical TCE.

5 A. Yes.

6 Q. You will agree it's carcinogenic to
7 humans; true?

8 A. Yes.

9 Q. Okay. NTP has said that; true?

10 A. Yes.

11 Q. IARC has said that; true?

12 A. Yes.

13 Q. Any other agencies you're aware of
14 that have said that?

15 A. (Reviews document.)

16 NTP. Did you say that?

17 Q. I did.

18 A. (Reviews document.)

19 I don't think that the National
20 Academies of Sciences had a conclusion with
21 respect to TCE.

22 Q. Okay. Let's move on to PCE.

23 A. Okay.

24 Q. Okay? Would you agree with me that

1 EPA believes following the EPA 2005 Guidelines for
2 Carcinogen Risk Assessment, carcinogen risk
3 assessment tetrachloroethylene, PCE, is likely to
4 be carcinogenic to humans by all routes of
5 exposure?

6 A. Yes, EPA did not conclude that PCE
7 was a known carcinogen.

8 Q. Do you agree that EPA has said that
9 PCE is likely to be carcinogenic in humans by all
10 routes of exposure?

11 A. Yes, EPA said it was likely, but I
12 think that implies that the evidence is stronger
13 than it is because it basically means that the
14 evidence is not strong enough to conclude
15 causation.

16 Q. You're saying there's another level
17 above that in the EPA?

18 A. Yes.

19 Q. And I'm only asking you,
20 Dr. Goodman, do you -- is that what EPA said?

21 A. Yes.

22 Q. And do you agree with that?

23 A. I agree that the evidence does not
24 support causation. So I agree, yes.

1 Q. And is your -- strike that.

2 Do you agree that EPA has said that
3 in accordance with EPA Guidelines for Carcinogen
4 Risk Assessment "PCE is considered likely to be
5 carcinogenic in humans by all routes of exposure
6 based on conclusive evidence in animals and
7 suggestive evidence in humans"?

8 A. (Reviews document.)

9 That is a quote from EPA, yes.

10 Q. Do you agree with that?

11 A. So I think the implication of
12 suggestive evidence sounds different using English
13 words than what -- how EPA is defining it as
14 saying evidence that you can't really tell either
15 way whether it's supportive or not.

16 Q. Dr. Goodman, you agreed that's a
17 quote from EPA?

18 A. I agree that's a quote from EPA.

19 Q. Okay. So certainly I wasn't
20 intending to analyze that quote.

21 I'm just asking you first: That is
22 a quote from EPA. Do you agree with it?

23 A. I don't agree with the terminology
24 EPA uses because that is misleading terminology.

1 Q. Okay. So you believe EPA is
2 misleading when it uses the evidence that we just
3 discussed; true?

4 A. When it uses terms like "likely
5 carcinogenic" and "suggestive evidence," that is
6 implying that the evidence is stronger than it is
7 by using those English words.

8 Q. You believe EPA is misleading; true?

9 A. I believe the words used are
10 misleading.

11 Q. Okay. NTP has said
12 tetrachloroethylene "is reasonably anticipated to
13 be a human carcinogenic based on sufficient
14 evidence of carcinogenicity from studies in
15 experimental animals"; true?

16 A. NTP did state that, yes.

17 Q. Okay. Do you agree with that?

18 A. Do I agree that that's what NTP
19 said?

20 Q. No.

21 Do you agree with the substance of
22 the -- of the comment?

23 A. I agree that -- that PCE did cause
24 certain tumors in animals and that the evidence in

1 humans is inconclusive, which is essentially what
2 NTP said.

3 Q. So you agree with that; true?

4 A. Again, I don't think saying it's
5 "reasonably anticipated" is an appropriate use of
6 the English language to describe the state of the
7 evidence, but if you look at how NTP defines that
8 as that the evidence falls short of causation,
9 then I would agree with that.

10 Q. Do you know or have any reason to
11 understand why EPA would have used that language
12 if it wasn't an accurate use of the English
13 language that way?

14 A. I do not.

15 Q. Okay. IARC has stated that
16 tetrachloroethylene is probably carcinogenic to
17 humans Group 2A; true?

18 A. Yes.

19 Q. Do you agree with that assessment?

20 A. Well, I would give you the same
21 answer I gave for the other agencies. That IARC
22 is using English words that tend to be misleading
23 and tend to overstate the evidence.

24 Q. Okay. So NTP is using words in the

1 English language that overstate the evidence and
2 are not intended to be used and so is IARC; true?

3 A. Essentially, yes.

4 Q. Okay. But you are using the correct
5 language, right, in your assessment?

6 MS. JOHNSON: Objection to
7 form.

8 THE WITNESS: What I'm doing
9 is -- if you were to look at how these
10 agencies define categories of less than,
11 you know, known human carcinogens, I
12 agree with what is being said.

13 But what I'm trying to make
14 clear is that the words that they're
15 using is "probably" or "likely" is -- is
16 overstating what the evidence is to
17 someone who isn't familiar with their
18 framework and their criteria.

19 BY MR. MANDELL:

20 Q. Do you think PCE probably causes
21 cancer in humans?

22 A. I think that the evidence does not
23 support PCE as a cause of cancer in humans.

24 Q. So you disagree with IARC; true?

1 A. As I said, IARC has a classification
2 scheme. It used its scheme and it came to that.
3 So if you're asking do I disagree with the
4 framework that it used? Yes, I think the
5 framework tends to overstate health hazards.

6 Q. Okay.

7 MS. JOHNSON: Counsel, we've
8 been going for a little over an hour. Do
9 you want to take a break?

10 MR. MANDELL: Sure. Do you
11 want to take a break? Okay.

12 MS. JOHNSON: Yeah.

13 THE VIDEOGRAPHER: The time is
14 3:11 PM. We're going off the record.

15 (A recess was taken.)

16 THE VIDEOGRAPHER: The time is
17 3:19 PM. We're going back on the record.
18 Please proceed, counsel.

19 BY MR. MANDELL:

20 Q. Dr. Goodman, with regard to benzene,
21 would you agree that EPA has stated that this --
22 their 1998 document:

23 "This document reconfirms that
24 benzene is a known human carcinogen by all routes

1 of exposure"?

2 MS. JOHNSON: Objection.

3 Form.

4 THE WITNESS: Can you show me
5 that document, please?

6 BY MR. MANDELL:

7 Q. Sure.

8 THE COURT REPORTER: Exhibit
9 20.

10 (Document marked for
11 identification as Exhibit 20.)

12 THE WITNESS:
13 (Reviews document.)

14 BY MR. MANDELL:

15 Q. It's right under 2.4.

16 A. Sorry.

17 MS. JOHNSON: We don't have
18 2.4. I have a 2.

19 MR. MANDELL: I might be -- I
20 might be looking the wrong document. I
21 think this is the wrong one. That's a
22 different page.

23 I think it might just be a
24 photocopying error. Do you care if I

1 just show this one page? I'm happy to
2 have you look at it first?

3 MS. JOHNSON: I can make
4 copies if you like.

5 MR. MANDELL: Sure.

6 MS. JOHNSON: Okay.

7 MR. MANDELL: Why don't we do
8 this. Do you mind?

9 MS. JOHNSON: No, I don't
10 mind.

11 MR. MANDELL: Thank you.

12 MS. JOHNSON: Step off the
13 record for a moment.

14 MR. MANDELL: Thanks.

15 THE VIDEOGRAPHER: The time is
16 3:21 PM. We're going off the record.

17 (A recess was taken.)

18 (Document marked for
19 identification as Exhibit 21.)

20 THE VIDEOGRAPHER: The time is
21 3:23 PM. We're going back on the record.
22 Please proceed, counsel.

23 BY MR. MANDELL:

24 Q. We're looking at page 28. It's

1 highlighted for you. That is the highlighting
2 that I made.

3 A. (Nods head).

4 Q. Do you see that sentence?

5 A. Yes.

6 Q. And do you agree with that sentence?

7 A. Yeah, I agree that benzene is a
8 known human carcinogen.

9 Q. Great.

10 You agree that IARC has said that;
11 true?

12 A. Yes.

13 Q. And NTP?

14 A. Yes.

15 Q. And you would agree with those
16 entities as well; true?

17 A. Yes.

18 MS. JOHNSON: Objection.

19 Form.

20 BY MR. MANDELL:

21 Q. Would you agree with me that the EPA
22 with regard to vinyl chloride has said:

23 "On the basis of sufficient evidence
24 for carcinogenicity and human epidemiology

1 studies, VC is therefore considered to best fit
2 the weight-of-evidence category A according to
3 current EPA risk assessment guidelines. Agents
4 classified in this category -- into this category
5 are considered to be known human carcinogens."

6 MS. JOHNSON: Objection.

7 Form. That's a long one. Maybe she can
8 take a look.

9 BY MR. MANDELL:

10 Q. Did you get the quote?

11 A. I haven't seen that quote or I don't
12 recall that quote.

13 Q. Okay. Why don't we make a copy at a
14 break and then we can come back to it.

15 Do you agree that IARC has said that
16 evidence for that vinyl -- for vinyl chloride
17 there's evidence for carcinogenicity to humans is
18 sufficient?

19 A. Yes.

20 Q. And do you agree with that?

21 A. I believe so, yes.

22 Q. Do you agree that IARC has said that
23 there is for vinyl chloride evidence for
24 carcinogenicity to animals --

1 A. Yes.

2 Q. -- sufficient?

3 Do you agree with that?

4 MS. JOHNSON: She responded
5 before you finished your question.

6 MR. MANDELL: She said yes.

7 BY MR. MANDELL:

8 Q. Right?

9 A. So I focused on the cancers at issue
10 in this case, and so I would want to look at the
11 evidence for the -- the liver cancers before
12 agreeing to that statement.

13 Q. But there's nothing I can show you
14 now. You're saying you want to do an in-depth
15 review of it?

16 A. Yeah, I guess I would -- yes, I
17 would like to say that the evidence for vinyl
18 chloride is for -- for liver cancers. None of the
19 cancers at issue here, and so that evidence that
20 IARC is referring to would be for liver cancer.
21 So I want to review that before providing an
22 opinion on it.

23 Q. Okay. But as you sit here today,
24 you don't have enough information to say whether

1 you agree or disagree with IARC when they say that
2 there's evidence for carcinogenicity to animals
3 and that was sufficient; true?

4 A. As I sit here today, yes.

5 Q. Okay. And NTP has said that vinyl
6 chloride is known to be a human carcinogen; true?

7 A. Yes.

8 Q. And you agree with that?

9 A. Yes.

10 Q. Okay.

11 THE COURT REPORTER: Exhibit

12 22.

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

15 BY MR. MANDELL:

16 Q. Dr. Goodman, what I'm showing you is
17 an article that you've written from 2018; true?

18 A. Yes.

19 Q. And it's entitled "Short-term ozone
20 exposure and asthma severity: Weight-of-evidence
21 analysis"; true?

22 A. Yes.

23 Q. Where was this published?

24 A. In the peer-reviewed journal

1 "Environmental Research."

2 Q. Okay. So "Environmental Research"
3 is a peer-reviewed journal and you have -- 1, 2,
4 3, 4, 5, 6, 7 -- 8 authors on this?

5 A. Yes.

6 Q. A couple -- at least one of them is
7 Gradient or they're all Gradient; true?

8 MS. HURT: Object to form.

9 BY MR. MANDELL:

10 Q. Strike that.

11 Are all of the authors from
12 Gradient?

13 A. Yes.

14 Q. Okay. And in this article, you do
15 an analysis of whether short-term ozone exposure
16 and asthma severity -- strike that -- whether
17 short-term ozone exposure causes asthma severity
18 and you did a weight-of-the-evidence analysis;
19 true?

20 A. Yes.

21 Q. And at the end of the abstract --
22 and we can get into the body of it too -- but can
23 you read the last sentence of the abstract?

24 A. Yes. It says:

1 "Taken together, the weight of
2 evidence indicates that there is at least an equal
3 likelihood that either explanation is true, the
4 strength of the evidence for a causal relationship
5 between short-term exposure to ambient ozone
6 concentrations and asthma severity is 'equipoise
7 and above.' "

8 Q. Okay. So you have published in
9 peer-reviewed -- in a peer-reviewed journal an
10 article that is discussing a
11 weight-of-the-evidence analysis between a chemical
12 and a disease for which you utilized an equipoise
13 and above standard; true?

14 MS. JOHNSON: Object to form.

15 THE WITNESS: I used this
16 framework in this paper, yes.

17 BY MR. MANDELL:

18 Q. Okay. And in this paper, is it fair
19 to say that EPA had come out with a publication on
20 this exposure scenario; true?

21 MS. JOHNSON: Object to form.

22 THE WITNESS: EPA had
23 analyzed short-term exposure in asthma
24 severity.

1 BY MR. MANDELL:

2 Q. Right.

3 And they said they believed it was
4 causal; true?

5 A. I cannot remember what EPA's
6 conclusion was.

7 Q. Okay. Can you look on -- it's the
8 second page of the document. It's on the
9 left-hand side. It's the second paragraph above
10 2. Methods.

11 A. Yes.

12 Q. Does that help give you
13 understanding of what EPA concluded?

14 A. It says "EPA concluded that
15 short-term ozone exposure causes respiratory
16 morbidity, and that individuals with asthma
17 constitute a group susceptible to ozone."

18 Q. Do you read that to mean that EPA
19 concluded that short-term ozone exposure causes
20 respiratory morbidity including asthma?

21 A. Well, not necessarily. Respiratory
22 morbidity is a broad category, and if people with
23 asthma were susceptible, that would indicate it
24 doesn't cause asthma but maybe could exacerbate

1 asthma.

2 Q. It's not good for asthma; true? Is
3 that what their conclusion was?

4 MS. JOHNSON: Objection to
5 form.

6 THE WITNESS: It concluded
7 that ozone could contribute to asthma
8 severity.

9 BY MR. MANDELL:

10 Q. Okay. And who -- this article was
11 funded, was it not?

12 A. Yes.

13 Q. Who funded it?

14 A. TCEQ.

15 Q. And as we discussed, I think you had
16 agreed that they, TCEQ, had paid you -- paid
17 Gradient upwards of \$2.8 million over the course
18 of several years; true?

19 MS. JOHNSON: Object to form.

20 THE WITNESS: I can't
21 remember the exact amount, but that
22 sounds like it could be correct.

23 BY MR. MANDELL:

24 Q. Okay. And in this article, I just

1 want to ask you about a couple of individual
2 comments that you make.

3 On page 396. You can -- the numbers
4 are at the bottom.

5 It says at the very top left:

6 "We therefore determined that there
7 is at least an equal likelihood that either
8 explanation is true, i.e., the strength of the
9 evidence for a causal relationship between
10 short-term exposure to ambient ozone
11 concentrations and asthma severity is 'equipoise
12 and above.' "

13 True? That's what it says?

14 A. That is what it says.

15 Q. Okay. And so as you define the term
16 "equipoise and above," you define that as at least
17 an equal likelihood that either explanation is
18 true, the strength of the evidence for a causal
19 relationship and against; true?

20 MS. JOHNSON: Where are we at?

21 MR. MANDELL: It's the top of
22 396. Top left.

23 THE WITNESS: It's saying
24 that it could go either way. It could be

1 causal or it might not be causal.

2 BY MR. MANDELL:

3 Q. That's how you define equipoise;
4 true?

5 A. I believe that we use the language
6 from this Institute of Medicine 2008 report and
7 their definition, and what we're saying is that if
8 it could go either way, it doesn't mean it's 50
9 percent and up. It means it could be supportive
10 or it might not be supportive.

11 Q. Well, I was going to ask you about
12 that language next.

13 But on page 392 under number 2, the
14 way that you defined it through the Institute of
15 Medicine 2008, equipoise and above is defined as
16 "The evidence is sufficient to conclude that a
17 causal relationship is at least as likely as not,
18 but not sufficient to conclude a causal
19 relationship exists"; true?

20 A. I believe those are the Institute of
21 Medicine's words, yes.

22 Q. Right.

23 And you agree with those words as
24 you used it in this article; true?

1 A. No. It appears that we -- what we
2 were saying is that, essentially it appears that
3 the definition we used actually would fit more
4 with below equipoise because we're saying it could
5 go either way.

6 Q. Do you say that anywhere in this
7 article?

8 A. Well, I'm saying it based on what we
9 wrote. Because it says there's substantial
10 uncertainty with each of the two competing
11 hypotheses, and that is one is that there's a
12 causal relationship and one is that there's not.
13 And we're saying since it could be either way,
14 that doesn't mean that -- it doesn't mean that
15 it's either 50/50 or above.

16 I think what we were saying is that
17 it's 50/50 on the line or it could be -- since
18 either one could be true, it could either go below
19 the line or above the line.

20 Q. And you, as we just looked at,
21 determined that it was equipoise and above; true?
22 In this case.

23 A. Yes, it is.

24 MS. JOHNSON: Objection to

1 form.

2 THE WITNESS: In this case,
3 we used the term "equipoise and above,"
4 yes.

5 BY MR. MANDELL:

6 Q. And in there you said:

7 "We determined that there is at
8 least an equal likelihood that either explanation
9 is true the strength of the evidence for a causal
10 relationship between short-term exposure to
11 ambient ozone concentrations in asthma severity at
12 equipoise and above."

13 True?

14 A. Again, you -- I don't think it's
15 appropriate to take that sentence without looking
16 at the previous sentences in that paragraph.
17 Because what we said is you can't tell the
18 difference. The evidence is up in the air. It
19 could be either causal or not causal.

20 Q. And you ultimately determined in
21 that situation that it was equipoise and above;
22 right?

23 A. Again, those are the -- yes, those
24 are the words that we used.

1 Q. Well, did the words that you use
2 have any different meaning than the way that we're
3 saying them right now?

4 MS. JOHNSON: Objection.

5 Form.

6 THE WITNESS: I think sitting
7 here, as I sit here today and I look at
8 how they're defined, what we're saying is
9 actually below equipoise.

10 BY MR. MANDELL:

11 Q. So you disagree with your own
12 article; is that what you're saying?

13 A. I think that the words are there.
14 So it's clear what -- what we did and what we
15 intended, but I don't think -- I think if you're
16 saying it could go either way, it's impossible to
17 put it right on that line of 50 percent.

18 Q. But that's not what you're saying in
19 this article; true?

20 A. Right. I think at the time we
21 thought, well, if it could go either way, let's
22 say it's on the line and be conservative and say
23 equipoise and above.

24 But as I sit here today, I think,

1 well, it could be on the line, but it could be
2 below, it could be above, but basically we don't
3 know. And if we don't know, then that's probably,
4 you know, and kind of an overly conservative
5 characterization.

6 Q. So you disagree with your own
7 article; true?

8 A. As I said, I don't disagree with the
9 analysis. I think, looking at it now, I probably
10 would have -- I might have put it in a different
11 bin.

12 Q. So you disagree with your own
13 article; true?

14 MS. JOHNSON: Objection.

15 Asked and answered.

16 THE WITNESS: I would just
17 continue to repeat my answer.

18 BY MR. MANDELL:

19 Q. Okay. Under the Conclusions
20 section --

21 A. Yes.

22 Q. -- it says -- are you there?

23 There's a paragraph that says:

24 "However, while the totality of the

1 evidence is suggestive of an association between
2 short-term exposure to ambient ozone
3 concentrations and asthma severity, it is not
4 sufficiently strong to infer a causal
5 relationship, and several plausible alternative
6 explanations for positive findings cannot be ruled
7 out with confidence. We conclude that the
8 evidence is sufficient to conclude that a causal
9 relationship is at least as likely as not, but not
10 sufficient to conclude that a causal relationship
11 exists."

12 True? That's what it says?

13 A. You read that correctly.

14 Q. Okay. And do you disagree with that
15 statement in the article that you wrote in 2018?

16 A. (Reviews document.)

17 I think if you look at the whole
18 article and actually that whole section on the
19 causal determination, what we're saying is, is we
20 can't distinguish between whether it's likely
21 causal or likely not.

22 Q. Right.

23 So, but do you agree or disagree
24 with that sentence as I just read it?

1 A. I agree it's not sufficiently strong
2 to infer causation and there's several alternative
3 explanations for positive findings that can't be
4 ruled out.

5 Q. Right.
6 So you call it equipoise and above;
7 true?

8 MS. JOHNSON: Objection to
9 form.

10 THE WITNESS: That's what we
11 said in this article.

12 BY MR. MANDELL:

13 Q. Right.
14 So I want to ask you about a couple
15 of the specifics.

16 If you could turn to page 393, and
17 what I want to ask you about is under the section
18 3.2. Epidemiology studies.

19 Do you see that?

20 A. Yes.

21 Q. The last paragraph in that. There's
22 only two paragraphs, but the second paragraph
23 says:

24 "In general, results from panel

1 studies were largely null for lung function
2 changes and inconsistent with regard to asthma
3 symptoms and medication use. However, studies of
4 asthma-related ED visits and HA, particularly
5 those in Tier 1, mostly reported positive, though
6 not always statistically significant, effect
7 estimates for ozone, suggesting that there is an
8 association between short-term exposure to ambient
9 ozone concentrations and asthma severity."

10 True?

11 A. You read that correctly.

12 Q. Okay. And then on page -- also on
13 page 393 on the right side, it says:

14 Overall -- in 4.1. Strength of
15 association.

16 A. Yes.

17 Q. It says "Overall" -- at the very
18 bottom.

19 "Overall, most epidemiology studies
20 reported associations that were small in
21 magnitude, and many were not statistically
22 significant. Taken together, the magnitude of
23 associations generally observed in this body of
24 evidence does not increase our confidence that

1 observed associations between ozone and asthma
2 severity are causal."

3 True?

4 A. You read that correctly.

5 Q. Okay. So in this article, when you
6 found that most of the epidemiology studies were
7 small in magnitude and not statistically
8 significant and when you found that the evidence
9 did not increase your confidence from the EPI
10 studies that observation association between ozone
11 and asthma severity are causal, you called this
12 equipoise and above; true?

13 MS. JOHNSON: Objection to
14 form.

15 THE WITNESS: So all you're
16 looking at right now is the strength of
17 association. There's a whole other, I
18 think -- and, again, we did this
19 research, you know, eight or nine years
20 ago. So I don't remember all the
21 details.

22 But what I can say is, the
23 idea is when you do a systematic review,
24 you look at all aspects. You don't just

1 focus on strength. You look at
2 consistency and coherency to animal data,
3 the biological gradient.

4 BY MR. MANDELL:

5 Q. And I'm only asking you: In this
6 particular study, when under the Strength of
7 association you found that most EPI studies
8 reported associations that were small in magnitude
9 and not statistically significant, and ultimately
10 you said that the strength of the association did
11 not increase your confidence that the association
12 between ozone and asthma severity are causal, you
13 still called it equipoise and above; true?

14 A. Yes.

15 Q. And so you could not ever say that
16 just because most EPI studies were null or
17 small -- strike that.

18 Just because most -- you would never
19 say that just because most EPI studies were small
20 in magnitude and not statistically significant,
21 and even if they didn't increase your confidence
22 about the association, you would never say that
23 somebody shouldn't call that equipoise; true?

24 MS. JOHNSON: Objection to

1 form.

2 BY MR. MANDELL:

3 Q. For that fact alone.

4 MS. JOHNSON: That was a long
5 one.

6 BY MR. MANDELL:

7 Q. Did you understand the question?

8 A. No.

9 Q. Okay. You would never look -- if
10 somebody were to say in their analysis that just
11 because EPI studies were small in magnitude and
12 not statistically significant, you would never say
13 that that would mean that it would have to be
14 because of that fact below equipoise and above;
15 true?

16 A. I would never draw a conclusion
17 based on strength of association alone. So I
18 can't answer that without more context.

19 Q. Sure.

20 So you would never say that it is
21 improper to call something equipoise and above if
22 most EPI studies -- under your Strength of
23 association analysis most EPI studies reported
24 associations that were small in magnitude and many

1 were not statistically significant; true?

2 MS. JOHNSON: Objection.

3 Form.

4 THE WITNESS: Okay. So I
5 think what's -- I mean to answer your
6 question, we have to talk about where
7 this framework came from. And the reason
8 why we used this framework is because EPA
9 used a five step framework and we thought
10 a four level framework was more
11 appropriate. So that's where this came
12 from just first of all.

13 But I think in terms of, you
14 know, causation or not, you read that
15 paragraph correctly. We said that the --
16 the associations were small in magnitude
17 and ultimately we concluded that the
18 evidence we couldn't rule out causation
19 and we couldn't rule out not causation.

20 BY MR. MANDELL:

21 Q. Right. So let me try to change it
22 to the positive.

23 You can find equipoise and above
24 causation and equipoise and above causal

1 relationship even when most EPI studies report
2 associations that are small in magnitude and many
3 are not statistically significant; true?

4 A. So I would say yes because
5 equipoise, as defined here, means 50/50. It's a
6 coin flip.

7 Q. Okay. So on page 395. If you could
8 turn there for me, please.

9 On the right-hand side under Causal
10 determination, the end of the second paragraph it
11 says:

12 "Evidence from animal toxicity
13 studies does not provide for a causal
14 relationship, but it does not refute it either
15 because its relevance to humans is unclear."

16 True? That's what it says?

17 A. You forgot the word "support" but
18 besides that you --

19 Q. Support. "Provide support for a
20 causal relationship." I'm sorry.

21 I read it correctly, true, other
22 than that?

23 A. Yes. You just left out the word
24 "support."

1 Q. Okay. Let me try again.

2 A. (Laugh).

3 Q. "Evidence from animal toxicity
4 studies does not provide support for a causal
5 relationship, but it does not refute it either
6 because its relevance to humans is unclear."

7 True?

8 A. Yes.

9 Q. So you would agree that you can find
10 equipoise and above causation, a causal
11 relationship, at least as likely as not, when
12 animal studies the relevance to humans is unclear;
13 true?

14 MS. JOHNSON: Object to form.

15 THE WITNESS: Again, if it's
16 unclear, it's a flip of a coin 50/50.

17 So, yes.

18 BY MR. MANDELL:

19 Q. Okay. And on page 393 on the
20 left-hand side under Animal toxicity studies, it
21 says:

22 "There was also uncertainty with
23 regard to the" -- are you there?

24 A. Yes.

1 Q. "There was also uncertainty with
2 regard to the relevance of these studies to humans
3 exposed to ambient ozone levels. Most studies
4 were conducted at levels that exceed typical human
5 exposures, with many conducted with exposures an
6 order of magnitude higher than the lowest
7 exposures in the human studies. In addition,
8 interspecies differences in nasal structures,
9 ventilation rates, and body surface area/volume
10 ratios, as well as obligate nose breathing in
11 rodents compared to humans, all limit the
12 relevance of study results to humans."

13 True?

14 A. You read that correctly.

15 Q. So in somebody doing an analysis,
16 even when they find that the animal studies are
17 not relevant to humans for these reasons, you can
18 still find equipoise and above causation, a causal
19 relationship, under at least as likely as not;
20 true?

21 MS. JOHNSON: Objection to
22 form.

23 THE WITNESS: Again, it's a
24 coin flip. What we're saying is it's --

1 it's not informative either way. So it
2 doesn't push you above the needle
3 necessarily of -- of -- when you say at
4 least as likely as not, at least as
5 likely as 50/50. It's a coin flip. It
6 could go either way, and that's what we
7 concluded.

8 BY MR. MANDELL:

9 Q. And that's how you defined that in
10 this article; true?

11 A. That's how the Institute of Medicine
12 defined it.

13 Q. And that's how you utilized it;
14 true?

15 A. Yes.

16 Q. Okay. So you would agree with my
17 statement that even with those items that we just
18 read with regard to animal studies, you can still
19 find a causal relationship under at least as
20 likely as not standard or equipoise; true?

21 MS. JOHNSON: Object to form.

22 THE WITNESS: Again, we
23 concluded that it was a coin flip. It
24 was you couldn't rule in causation and

1 you couldn't rule it out.

2 BY MR. MANDELL:

3 Q. So you agree with my statement;
4 true?

5 A. I don't think. So we used the words
6 "at least as likely as not," meaning it's at the
7 "at," it's at the 50 percent.

8 Q. So you agree with my statement;
9 true?

10 A. I agree with it at the "at," not
11 that it's more likely, or the "at least" meaning
12 the 50/50, meaning the coin flip.

13 Q. So you agree with my statement;
14 true?

15 MS. JOHNSON: Asked and
16 answered.

17 THE WITNESS: My answer is
18 the same.

19 BY MR. MANDELL:

20 Q. Okay. On page 394 on the right-hand
21 side under Biological plausibility, the last
22 paragraph says:

23 "Overall, the specific MoA by which
24 short-term exposure to ozone could affect asthma

1 severity is unknown, but several MoAs have been
2 proposed. Sufficient data are not available,
3 however, to assess whether these mechanisms occur
4 at concentrations that reflect typical U.S.
5 ambient exposures or if they are high-exposure
6 mechanisms. Because we cannot be confident that
7 the proposed mechanisms for respiratory health
8 effects occur at the levels of ozone exposure
9 measured in epidemiology studies, the overall
10 strength of the evidence for causality is
11 diminished."

12 True? That's what it says?

13 A. You read that correctly.

14 Q. So essentially what you were saying
15 is: The evidence as you sought for mechanism of
16 action or mode of action led you to believe that
17 the overall strength was less because of that
18 evidence; true?

19 MS. JOHNSON: Objection.

20 Form.

21 THE WITNESS: Essentially we
22 -- because there were hypothesized modes
23 of actions, so there were possible ideas
24 put forth by which this could be

1 Q. You --

2 A. -- and that's how you get to that
3 equipoise and above.

4 Q. You agree that you can get to 50/50
5 even when a specific mechanism of action is
6 unknown and the overall strength for causality is
7 diminished by the mechanism of action whatever
8 turn; true?

9 A. You can get --

10 MS. JOHNSON: Objection.

11 Form.

12 THE WITNESS: You can get to
13 50/50 by flipping a coin when you don't
14 have information that you can rely on.

15 BY MR. MANDELL:

16 Q. Can you get to it when the specific
17 mode of action is unknown and when the overall
18 strength of the mode of action actually diminishes
19 the evidence for causality?

20 MS. JOHNSON: Objection.

21 Form.

22 THE WITNESS: Again, you can
23 get at a 50/50 coin flip where you don't
24 know whether it's more likely for

1 causation or not causation.

2 BY MR. MANDELL:

3 Q. Dr. Goodman, isn't that what you did
4 here, right here?

5 MS. JOHNSON: Objection.

6 Form.

7 THE WITNESS: Yes.

8 BY MR. MANDELL:

9 Q. Okay. Finally, in terms of
10 confounders, can you go to 395, please.

11 On the left-hand side right under or
12 right on top of 4.7 Clinical relevance, it says:

13 "Overall, the strength of the
14 evidence for causation is reduced by the likely
15 presence of confounding and biases."

16 True?

17 A. Yes.

18 Q. You can get to 50/50 equipoise, at
19 least as likely as not, even when the strength of
20 the evidence for causation is reduced by the
21 likely presence of confounding and biases; true?

22 MS. JOHNSON: Objection.

23 Form.

24 THE WITNESS: You can get to

1 50/50. You can't get higher.

2 BY MR. MANDELL:

3 Q. I want to continue to ask you about
4 some agency reviews with regard to some of the
5 specific cancers at issue. Okay?

6 A. Okay.

7 Q. All right. So I'm going to start
8 with kidney cancer.

9 Do you have that report?

10 A. I do.

11 Q. Okay. Would you agree that:

12 ATSDR concurs with the evaluations
13 made by IARC, EPA, and NTP that based on the
14 overall consistent findings of increased risks of
15 kidney cancer from exposures to TCE and the
16 supporting mechanistic information, there is
17 sufficient evidence for causation for TCE and
18 kidney cancer?

19 MS. JOHNSON: Objection.

20 BY MR. MANDELL:

21 Q. Do you agree that that's what they
22 said?

23 MS. JOHNSON: Objection to
24 form. That's a long one. Can she read

1 that?

2 THE WITNESS:

3 (Reviews document.)

4 Yeah, I think unless I have
5 the quote from my report, it would be
6 helpful to see the actual documents where
7 these quotes are coming from.

8 THE COURT REPORTER: Exhibit
9 23.

10 (Document marked for
11 identification as Exhibit 23.)

12 BY MR. MANDELL:

13 Q. We're looking at page 22 of the
14 ATSDR 2017. The conclusion.

15 MS. PLATT: What conclusion
16 are you looking at?

17 MR. MANDELL: The one for TCE.

18 MS. JOHNSON: We got PCE.

19 MR. MANDELL: Yeah but right
20 above that it says "Conclusion."

21 MS. JOHNSON: Oh, okay.

22 THE WITNESS:

23 (Reviews document.)

24 BY MR. MANDELL:

1 Q. My first question is just: Is that
2 what they said?

3 A. Yes.

4 Q. Do you agree with it?

5 A. (Reviews document.)

6 I agree that these agencies conclude
7 that there is consistent findings of kidney cancer
8 from TCE and supporting mechanistic information.

9 Q. Do you personally agree with that
10 substance?

11 A. Well, I think when they're saying
12 supporting mechanistic information, they're
13 implying it's not necessarily strong, but I agree
14 with the consistent risks in epidemiology studies.

15 Q. Okay. Do you agree with the
16 statement or do you agree that ATSDR has said:
17 There is strong evidence that trichloroethylene
18 can cause kidney cancer in people and some
19 evidence that it causes liver cancer and malignant
20 emboli?

21 A. Yes.

22 Q. Do you agree with that conclusion?

23 A. I agree that -- I haven't looked at
24 liver cancer in any detail, but with respect to

1 NHL, I think that the evidence falls short of
2 supporting causation.

3 Q. Okay. Would you agree that EPA has
4 stated that: The conclusion that TCA is
5 characterized as carcinogenic to humans by all
6 routes of exposure, that EPA has said this
7 conclusion is based on convincing evidence of a
8 causal association between TCE in humans and
9 kidney cancer?

10 MS. JOHNSON: Objection.

11 Form. Is this in the -- in this?

12 MR. MANDELL: Different
13 document.

14 MS. JOHNSON: Different
15 document.

16 THE WITNESS: I think you
17 misspoke and said TCA, but assuming you
18 meant TCE, then yes, I agree.

19 BY MR. MANDELL:

20 Q. I apologize. If I misspeak like
21 that, please let me know, okay?

22 But you agree with the statement?

23 A. Yes.

24 Q. Okay. Do you agree that a kidney

1 cancer association cannot be reasonably attributed
2 to chance, bias or confounding?

3 MS. JOHNSON: Objection.

4 Form.

5 THE WITNESS: I think that's
6 a fair statement.

7 BY MR. MANDELL:

8 Q. Okay. Agree IARC has said the same
9 thing about TCE and kidney cancer as a general
10 proposition?

11 MS. JOHNSON: Objection.

12 Form.

13 THE WITNESS: IARC concluded
14 TCE is carcinogenic to humans based on
15 sufficient evidence of kidney cancer in
16 humans and sufficient evidence of
17 carcinogenicity in experimental animals.

18 BY MR. MANDELL:

19 Q. So yes?

20 A. If your question was, does IARC
21 classify TCE this way, then yes.

22 Q. Okay. Same thing with NTP?

23 MS. JOHNSON: Objection.

24 Form.

1 THE WITNESS:

2 (Reviews document.)

3 Yes.

4 BY MR. MANDELL:

5 Q. For PCE, would you agree that IARC
6 has said that in mammalian species the kidney is a
7 target organ for toxicity of tetrachloroethylene
8 and other related chlorinated ethanes and
9 ethylenes and there is some evidence that PCE is
10 carcinogenic in the kidney in male rats?

11 MS. JOHNSON: Objection.

12 Form. Long one.

13 THE WITNESS: I'm sorry.

14 Could you show me that?

15 BY MR. MANDELL:

16 Q. Do you agree that IARC believes that
17 there's evidence that tetrachloroethylene is
18 carcinogenic in the kidney in male rats?

19 A. Yes.

20 Q. And do you agree with that
21 personally?

22 A. Sorry. I agree that EPA said there
23 is some evidence that it's carcinogenic in the
24 kidney in male rats.

1 Q. Correct.

2 Do you agree with that?

3 A. No chronic animal study has reported
4 a statistically significant increase of kidney
5 tumors associated with oral or inhalation
6 exposures to PCE.

7 Q. So you disagree with EPA?

8 A. That was IARC we were talking about.

9 Q. I'm so sorry.

10 You disagree with IARC?

11 A. (Reviews document.)

12 Well, I think IARC was saying some
13 evidence and some evidence was -- the some was a
14 big qualifier. Because if you look at what the
15 evidence was, there were -- there are alternative
16 explanations besides causation for any tumors that
17 were seen in rats.

18 Q. Do you agree or disagree with the
19 sentence?

20 A. I think the -- the definition of the
21 word "some" needs some context and with that
22 context I would agree.

23 Q. Okay. For bladder cancer? I don't
24 know if you need to pull a different report, but

1 I'm going to move on to bladder cancer.

2 A. Yeah.

3 MS. JOHNSON: Objection.

4 Form.

5 BY MR. MANDELL:

6 Q. Tell me whenever you're ready.

7 A. Okay.

8 Q. Would you agree that ATSDR 2017 has
9 concluded that there is sufficient evidence for
10 causation for PCE and bladder cancer?

11 A. (Reviews document.)

12 That is what the 2017 evaluation
13 said, but ATSDR 2019 did not concur.

14 Q. Well, 2000 -- do you agree with
15 2017?

16 MS. JOHNSON: Objection.

17 Form.

18 THE WITNESS: No.

19 BY MR. MANDELL:

20 Q. Okay. 2019 says studies in humans
21 suggest that exposure to PCE may lead to a higher
22 risk of getting bladder cancer, multiple myeloma
23 or non-Hodgkin's lymphoma; true?

24 A. ATSDR stated that the data are

1 suggestive but weak.

2 Q. Did they state that: "Studies in
3 humans suggest that exposure to
4 tetrachloroethylene may lead to a higher risk of
5 getting bladder cancer"?

6 A. What I am seeing is that ATSDR
7 concluded that available human data provide
8 suggestive but weak evidence for
9 tetrachloroethylene-induced bladder cancer in
10 humans.

11 Q. Do you agree or disagree with the
12 statement: "Studies in humans suggest that
13 exposure to tetrachloroethylene may lead to a
14 higher risk of getting bladder cancer"?

15 Do you just generally? Generally,
16 do you agree or disagree with that statement?

17 A. I -- it is my understanding that
18 ATSDR phrased it that way to demonstrate that the
19 evidence is -- is very weak and it said that it's
20 weak. But I think it could lead to confusion as
21 stated, and I would state it as the evidence does
22 not support a causal association.

23 Q. So ATSDR used confusing language is
24 what you're saying?

1 A. Yes.

2 Q. And you therefore disagree with it;
3 true?

4 A. I agree the evidence is weak and
5 that it does not support causation.

6 Q. So you disagree with that statement;
7 true?

8 MS. JOHNSON: Objection.

9 Form. Which statement?

10 THE WITNESS: I think I was
11 clear that I was saying I agree with
12 ATSDR's conclusion that the evidence is
13 very weak and that it does not support
14 causation. So I would say I agree.

15 BY MR. MANDELL:

16 Q. Okay. EPA has said "The available
17 epidemiologic studies provide a pattern of
18 evidence associating tetrachloroethylene exposure
19 and several types of cancer, specifically bladder
20 cancer" and then others; true?

21 A. I am not aware of that quote, but I
22 can say EPA's ultimate conclusion is there is some
23 evidence for an association between PCE and
24 bladder cancer but results are mixed.

1 Q. Okay.

2 THE COURT REPORTER: Exhibit

3 24.

4 (Document marked for
5 identification as Exhibit 24.)

6 MS. PLATT: Is this 24?

7 MR. MANDELL: I believe it is

8 24.

9 THE COURT REPORTER: Yes.

10 BY MR. MANDELL:

11 Q. In the middle of the first paragraph
12 two-thirds of the way down. "The available
13 epidemiologic studies." That sentence.

14 A. (Reviews document.)

15 So you read that sentence correctly,
16 but then when you go to the conclusion of this
17 document, it contradicts that.

18 Q. Okay. So are you saying that EPA is
19 internally contradictory?

20 A. Yes.

21 Q. Okay. Let me move on to leukemia.

22 Do you agree that ATSDR 2017 has
23 concluded that there is equipoise and above
24 evidence for causation for PCE in all adult

1 leukemias?

2 A. (Reviews document.)

3 It appears that ATSDR 2017 said that
4 there was equipoise and above evidence for all
5 types of leukemia, but ATSDR 2019 did not have
6 that conclusion.

7 Q. I'm just asking about ATSDR 2017.
8 Is that what it said and do you
9 agree with it?

10 A. That is what it said and --

11 MS. JOHNSON: Objection to it.

12 BY MR. MANDELL:

13 Q. Sorry. Do you agree with that?

14 A. I and ATSDR 2019 disagree with that.

15 Q. Okay. Would you agree that with
16 regard to benzene, ATSDR concluded -- '17
17 concluded that there's sufficient evidence for
18 benzene and all types of leukemia?

19 A. (Reviews document.)

20 I agree that that was the
21 conclusion.

22 Q. And do you agree with that
23 conclusion?

24 A. ATSDR 2019 and I and other agencies

1 disagree with that conclusion.

2 Q. Okay. Do you agree that IOM2003 has
3 concluded -- states that the committee concludes
4 from its assessment of the epidemiology and
5 experimental literature that "there is sufficient
6 evidence of a causal relationship between chronic
7 exposure to benzene and acute leukemia"?

8 A. Yes.

9 Q. And do you agree with that?

10 A. I believe there is sufficient
11 evidence for AML but not ALL.

12 Q. Only AML but nothing else?

13 A. Well, myelodysplastic syndrome --

14 Q. Okay.

15 A. -- which is on the path to AML.

16 Q. Do you agree that EPA has said that
17 it is clearly "established and accepted that
18 exposure to benzene causes acute nonlymphocytic
19 leukemia and a variety of other blood-related
20 disorders in humans"?

21 A. I do not see that.

22 Q. Okay. Do you agree with the
23 sentence?

24 MS. JOHNSON: Objection to

1 form.

2 THE WITNESS:

3 (Reviews document.)

4 Could you repeat the sentence?

5 BY MR. MANDELL:

6 Q. Sure.

7 "It has been clearly established and
8 accepted that exposure to benzene causes acute
9 nonlymphocytic leukemia and a variety of other
10 blood-related disorders in humans"?

11 A. So that sentence is basically saying
12 that benzene can cause AML and then other
13 noncancer conditions in blood. I would agree with
14 that.

15 Q. Okay. Great.

16 Would you agree that IARC has said
17 that there is sufficient evidence in humans for
18 the carcinogenicity of benzene. Benzene causes
19 acute myeloid leukemia, acute nonlymphocytic
20 leukemia. Also positive association has been
21 observed between exposure to benzene and acute
22 lymphocytic leukemia, CLL, multiple myeloma,
23 non-Hodgkin's lymphoma?

24 A. So I would agree in the sense that

1 there's sufficient evidence for AML and ANLL as
2 most ANLLs are AMLs.

3 And then in terms of, I mean, IARC
4 is not concluding there's sufficient evidence for
5 other leukemias. So I agree that there is not
6 sufficient evidence for the other leukemias.

7 Q. If you can turn to NHL, please.

8 And while you're doing that, my
9 first question is: Would you agree that ATSDR
10 2017 has stated that their conclusion is that
11 there is sufficient evidence for causation between
12 TCE and NHL?

13 A. (Reviews document.)

14 ATSDR 2017 concluded there was
15 sufficient evidence for causation for NHL, but
16 ATSDR 2019 did not.

17 Q. Do you agree with ATSDR 2017?

18 A. I do not.

19 Q. Do you agree that EPA has said that
20 the human evidence of carcinogenicity from
21 epidemiologic studies of TCE is strong for NHL but
22 less convincing than for kidney cancer and more
23 limited for liver and biliary tract cancer?

24 MS. JOHNSON: Objection.

1 That's a long one.

2 THE WITNESS: It's not clear
3 to me how it could be strong and yet not
4 convincing. I agree it's less convincing
5 than for kidney cancer.

6 BY MR. MANDELL:

7 Q. Do you agree with the EPA statement
8 that TCE exposure is strong for NHL?

9 A. No. I agree that it is less
10 convincing than it is for kidney cancer.

11 Q. Okay. So you disagree with EPA;
12 true?

13 A. Well, I agree that it's less
14 convincing than for kidney cancer.

15 Q. Do you agree with TCA -- EPA's
16 statement that TCE exposure is strong for NHL?

17 A. No.

18 Q. Okay. IARC has said there is
19 sufficient evidence in humans for the
20 carcinogenicity of trichloroethylene. TCE causes
21 cancer of the kidney. Positive association has
22 been observed between exposure between TCE and
23 non-Hodgkin's lymphoma.

24 Do you agree that that's what they

1 said?

2 A. Yes.

3 Q. Do you agree with the statement?

4 A. I agree with IARC that there is not
5 sufficient evidence that NHL can cause -- or that
6 TCE can cause NHL.

7 Q. Do you agree with the sentence that
8 I just read?

9 MS. JOHNSON: Object to form.

10 THE WITNESS: I agree that
11 some studies show positive associations,
12 yes.

13 BY MR. MANDELL:

14 Q. Okay. For PCE, do you agree that
15 ATSDR 2017 concluded that there is equipoise and
16 above evidence for causation of PCE and NHL?

17 A. Again, I agree that that is what
18 ATSDR said.

19 Q. Do you agree with the statement
20 yourself personally?

21 A. I and ATSDR 2019 do not agree.

22 Q. For benzene, would you agree that
23 ATSDR 2017 concluded that there is sufficient
24 evidence for causation for benzene and NHL?

1 A. (Reviews document.)

2 I agree that that is what ATSDR 2017
3 said, but ATSDR 2024 did not comment on NHL.

4 Q. Do you agree with what ATSDR 2017
5 said?

6 A. No.

7 Q. Do you agree IARC has found positive
8 associations between benzene and NHL?

9 A. (Reviews document.)

10 I see that IARC determined there was
11 limited evidence in humans for a causal
12 association with non-Hodgkin's lymphoma.

13 Q. Did you see where they said that
14 there were positive associations?

15 MS. JOHNSON: Objection.

16 Form. Where is that?

17 THE WITNESS:

18 (Reviews document.)

19 I don't have in front of me
20 the positive associations.

21 I see that there were some
22 studies that showed increased relative
23 risks, but IARC said that these studies
24 used different classifications of

1 lymphoma which varied over time and in
2 between studies.

3 BY MR. MANDELL:

4 Q. Would you agree with the statement,
5 whether they said it or not, that there are
6 positive associations between benzene and
7 non-Hodgkin's lymphoma?

8 MS. JOHNSON: Objection.
9 Form.

10 THE WITNESS: I think while
11 it's possible some studies reported
12 statistical associations, there is no
13 evidence for causation.

14 BY MR. MANDELL:

15 Q. So to the extent that IARC did say
16 that, that there is a positive association between
17 benzene and NHL, you would disagree with that;
18 fair?

19 MS. JOHNSON: Objection to
20 form. Go ahead.

21 THE WITNESS: Well, IARC
22 didn't say that.

23 BY MR. MANDELL:

24 Q. Okay. But if they did, you would

1 disagree with that; true?

2 MS. JOHNSON: Objection.

3 THE WITNESS: IARC said
4 limited evidence and what limited
5 evidence means is that there really is no
6 evidence.

7 BY MR. MANDELL:

8 Q. So you would disagree with the
9 sentence; true?

10 A. I --

11 MS. JOHNSON: Objection.

12 THE WITNESS: -- agree that
13 the evidence is limited and IARC's
14 definition of limited meaning that you
15 can't rule out chance by certain
16 confounding or other issues with study
17 quality.

18 BY MR. MANDELL:

19 Q. Okay. Finally, Parkinson's. Would
20 you agree that ATSDR 2017 has said that there's
21 equipoise and above evidence of causation for TCE
22 and Parkinson's disease?

23 MS. JOHNSON: Objection.

24 Form. She was getting her stuff out.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

THE WITNESS:
(Reviews document.)

ATSDR 2017 said the
epidemiology evidence is too weak to
achieve equipoise and above and based its
conclusion on mechanistic evidence.

BY MR. MANDELL:

Q. The ultimate opinion of ATSDR 2017
was that there was equipoise and above evidence
for causation between TCE and Parkinson's; true?

A. That was the ultimate conclusion,
yes.

Q. And do you disagree with that?

A. Yes, I do.

Q. Do you agree that EPA has said that
new -- "several newer epidemiologic studies have
found an association between TCE exposure and
neurodegenerative disorders such as amyotrophic
lateral sclerosis and Parkinson's disease"?

MS. JOHNSON: Object to form.

THE WITNESS: I agree EPA
said that. However, the studies to which
it's referring regarding Parkinson's
disease have serious methodological

1 limitations and don't support a causal
2 association.

3 BY MR. MANDELL:

4 Q. So you disagree with EPA; true?

5 A. Does EPA's statement say
6 associations?

7 Q. The EPA statement says:

8 "Additionally, several newer
9 epidemiologic studies have found an association
10 between TCE exposure and neurodegenerative
11 disorders such as amyotrophic lateral sclerosis
12 and Parkinson's disease."

13 A. There are some associations in some
14 studies, but they are not consistent and they do
15 not support causation.

16 Q. So you would disagree with that;
17 true?

18 A. I don't think EPA actually said they
19 were causal associations. It just said there was
20 some associations. It is not making a statement
21 about the totality of evidence.

22 Q. I didn't use the word "causal," did
23 I?

24 A. You did not.

1 MS. JOHNSON: Objection.

2 Form.

3 BY MR. MANDELL:

4 Q. Okay. So as I read it, do you agree
5 with that statement?

6 A. (Reviews document.)

7 I agree that there are associations
8 in these studies but -- so I agree with that
9 sentence as EPA stated it, but EPA did not discuss
10 whether they were likely causal. So that is what
11 I disagree with, that they indicate causality, but
12 EPA didn't say that. So I would agree with it as
13 written.

14 Q. Dr. Goodman, are you aware of a
15 study by the author named Yu that was published in
16 just early this year, 2025, entitled "Long-term
17 exposure to low-level ambient BTEX and
18 site-specific cancer risk: A national cohort study
19 in the UK Biobank"?

20 A. I recently became aware of that
21 study.

22 Q. Okay. Have you read it?

23 A. I have not read it.

24 Q. Okay. So you can't comment on it

1 one way or the other?

2 A. I'm aware generally that it's an
3 ecological study.

4 MR. MANDELL: Can we mark this
5 just quickly?

6 THE COURT REPORTER: Exhibit
7 25.

8 (Document marked for
9 identification as Exhibit 25.)

10 MR. MANDELL: It's Exhibit 25?

11 THE COURT REPORTER: Yes.

12 MR. MANDELL: Thank you.

13 BY MR. MANDELL:

14 Q. Just -- just so it's clear. Exhibit
15 25, you haven't read it in enough detail to be
16 able to comment on it; true?

17 A. (Reviews document.)

18 I haven't read it in detail. That
19 is true.

20 MR. MANDELL: Okay. Let's
21 take a quick break.

22 MS. JOHNSON: Are you
23 intending for her to read it over or
24 during the break?

1 MR. MANDELL: No.

2 MS. JOHNSON: Or off the
3 record?

4 MR. MANDELL: No.

5 MS. JOHNSON: Okay.

6 THE VIDEOGRAPHER: The time is
7 4:18 PM. We're going off the record.

8 (A recess was taken.)

9 (Document marked for
10 identification as Exhibit 26.)

11 (Document marked for
12 identification as Exhibit 27.)

13 (Document marked for
14 identification as Exhibit 28.)

15 THE VIDEOGRAPHER: The time is
16 4:34 PM. We're going back on the record.
17 Please proceed, counsel.

18 MR. MANDELL: For the record,
19 over the break we marked Exhibit 26,
20 which is the 2014 mortality study
21 relating to Marines, 2014a.

22 We marked the full 2018
23 morbidity study 27.

24 And we marked the 2024

1 mortality study 28.

2 BY MR. MANDELL:

3 Q. And here are all five. Okay?

4 A. Okay. Thank you.

5 Q. Sure.

6 What I'd like to do is ask you about
7 your bladder cancer report and the 2018 morbidity
8 study first.

9 Do you need the bladder cancer
10 report?

11 A. I have it.

12 Q. Okay.

13 A. Okay.

14 Q. And I'd ask you to turn to page 49
15 of your bladder cancer report.

16 And on page 49, in the third
17 paragraph down, the second sentence, it says:

18 "There was no clear" -- and by the
19 way, this is in the 2000 -- the section of your
20 report dealing with the 2018 morbidity study;
21 true?

22 A. Yes.

23 Q. Okay. And the sentence reads:

24 "There was no clear association

1 between TCE PCE -- TCE and PCE and bladder cancer
2 incidence among civilian employees."

3 That's what your report says; true?

4 A. Yes.

5 Q. Would you agree that the ATSDR
6 report says differently than that?

7 Could you turn to page 9 and 10 of
8 the ATSDR 2018. At the bottom of 9 to the top of
9 10.

10 A. (Reviews document.)

11 This is specifying in internal
12 analyses cumulative exposures, there were
13 associations with bladder cancer.

14 Q. Right.

15 Meaning TCE and PCE in the internal
16 analysis was, as Bove -- Dr. Bove found it,
17 associated with an increased risk in both Marines
18 and civilians; true?

19 MS. JOHNSON: Object to form.

20 THE WITNESS: Wait a minute.

21 (Reviews document.)

22 BY MR. MANDELL:

23 Q. So you're saying there is no clear
24 association. Dr. Bove is saying there was an

1 association. True?

2 A. I -- he doesn't have any -- any
3 actual risk estimates in this statement. He just
4 says "increased risk." So I'm not sure to what
5 he's referring specifically.

6 Q. Well, but the sentence says -- your
7 report says there was no clear association and his
8 report says Camp Lejeune was associated with
9 increased risk in Marines and civilians for
10 bladder cancer; true?

11 A. He is saying "associated," but he's
12 not actually showing any risk estimates in this --
13 this part of the report.

14 Q. As you read those two sentences, do
15 you think that they're not in conflict?

16 MS. JOHNSON: Objection.

17 Form.

18 THE WITNESS: I think that
19 this conclusion of this report is
20 misrepresenting the findings in that
21 report.

22 BY MR. MANDELL:

23 Q. Right.

24 So you disagree with it; true?

1 A. Yes.

2 Q. And so, therefore, your report would
3 be inconsistent with it; true?

4 MS. JOHNSON: Objection to
5 form.

6 THE WITNESS: I disagree with
7 how -- I and others disagree with how
8 Dr. Bove interprets epidemiology
9 information.

10 BY MR. MANDELL:

11 Q. Could you turn to page 50 of your
12 report for bladder cancer.

13 And we're talking about the 2024
14 incidence study which you label as 2024b; true?

15 A. Yes.

16 Q. And the second to the last sentence
17 of the first paragraph says:

18 "Compared to those at Camp
19 Pendleton, Marines and Navy personnel at Camp
20 Lejeune did not have a statistically significant
21 increase in risk of bladder cancer associated with
22 any duration of assignment."

23 True?

24 A. Yes.

1 Q. And could you turn to the Bove 2024
2 incidence study page 5.

3 A. Incidence?

4 Q. Yep.

5 A. Page 5?

6 Q. Correct. Left-hand side, first full
7 paragraph. It says:

8 "For the Marines and Navy personnel
9 subgroup, monotonic trends of bladder cancer and
10 thyroid cancer were observed with hazard ratios
11 above or equal to 1.2 and confidence interval
12 ranges less or equal to 3 at the high over 10
13 quarters duration of assignment at Camp Lejeune."

14 True?

15 A. CIR stands for confidence interval
16 ratio.

17 Q. Oh, what did I say? Ranges?

18 A. Yes.

19 Q. Sorry. Ratio.

20 A. You read that statement correctly.

21 But as I said in my report, the
22 confidence interval ratio is a made-up statistic
23 that is not generally accepted in epidemiology.

24 Q. Right.

1 That's what Dr. Bove used, though,
2 in the 2024 incidence study; true?

3 A. Yes, he used that unvalidated, not
4 generally accepted way to analyze his data.

5 Q. Right.

6 And he worked for ATSDR?

7 A. Yes.

8 Q. The United States ATSDR; true?

9 MS. JOHNSON: Objection.

10 Form.

11 THE WITNESS: Yes.

12 BY MR. MANDELL:

13 Q. And so essentially what you're
14 saying is the way that you read his study is there
15 was no statistically significant increase in risk
16 for bladder cancer and the way he's interpreting
17 it is there was; true?

18 A. No.

19 Q. Under his metric?

20 A. He is not actually claiming it's
21 statistically significant.

22 Q. Right.

23 But he specifically says he's not
24 using statistical significance in the study and

1 instead he's using this metric; true?

2 MS. JOHNSON: Objection to
3 form.

4 THE WITNESS: So he is saying
5 he's not using statistical significance,
6 but this metric is wholly dependent on
7 the statistical testing. It's just much
8 less stringent.

9 BY MR. MANDELL:

10 Q. Under his standard, he thinks there
11 is a relationship. Under your standard, you think
12 there isn't.

13 Is that fair?

14 A. I don't think I'm alone in that. As
15 I said, this is not a generally accepted method in
16 epidemiology.

17 Q. I'm not asking whether you're alone
18 with it or not.

19 I'm just asking: Is my statement
20 correct?

21 A. I disagree with Dr. Bove that this
22 is a meaningful analysis.

23 Q. Correct.

24 You're saying it's not meaningful.

1 He's saying it is. True?

2 A. Yes.

3 Q. Okay. If you could turn to your
4 leukemia report page 50.

5 Under Leukemia, first paragraph.
6 This is 2014a; true?

7 A. Yes.

8 Q. First paragraph, second sentence:
9 "There was no difference between
10 leukemia mortality in Camp Lejeune Marines and
11 Navy personnel and that of 154,969 Marines and
12 Navy personnel at Camp Pendleton."

13 True?

14 A. Yes.

15 Q. And if you look at the 2014a study
16 of Dr. Bove at page 8, please, under the
17 comparison of Camp Lejeune and Camp Pendleton.

18 MS. PLATT: Which one is A?

19 If you could use numbers.

20 MR. MANDELL: Mortality. Oh,
21 I don't have it numbered. Do you have
22 the Exhibit number? 26.

23 THE WITNESS: 26.

24 MS. PLATT: The page.

1 MR. MANDELL: Yeah. Sure.

2 BY MR. MANDELL:

3 Q. The second sentence under Comparison
4 says:

5 "For diseases of primary interest,
6 Camp Lejeune had elevated hazard ratios for kidney
7 cancer, liver cancer, esophageal cancer, multiple
8 myeloma, leukemias, Hodgkin lymphoma, and cervical
9 cancer."

10 True?

11 A. It says that, but none of those are
12 even close to statistically significant, or maybe
13 one is.

14 Q. Right.

15 A. But none of them are statistically
16 significant.

17 Q. You're claiming it's not meaningful.
18 He's claiming it is meaningful. True?

19 A. I don't know anyone else that would
20 claim that's meaningful.

21 Q. Well, he's writing for the United
22 States ATSDR; true?

23 MS. JOHNSON: Objection.

24 Form.

1 BY MR. MANDELL:

2 Q. He was employed by the United States
3 ATSDR?

4 A. It's stated clearly: "The findings
5 and conclusions in this report are those of the
6 authors and do not necessarily represent the
7 official position of the Centers for Disease
8 Control and Prevention/the Agency for Toxic
9 Substances and Disease Registry."

10 Q. Let me make it more clear.
11 He was employed by ATSDR at the
12 time. You're aware of that?

13 A. As far as I know, yes.

14 Q. Okay. So, again, you claim it's not
15 meaningful. He claims it does as to this issue.
16 True?

17 A. Yes.

18 Q. Would you agree with me that there
19 is -- there are many differences such as this in
20 each one of the five diseases relating to your
21 opinion and Dr. Bove's opinion?

22 MS. JOHNSON: Objection to
23 form.

24 THE WITNESS: I don't

1 understand the question.

2 BY MR. MANDELL:

3 Q. Well, what I'm hoping to try to do
4 is not go through every single example of times
5 where your opinions in your report are distinct
6 and inconsistent with Dr. Bove's in his five
7 reports.

8 So what I'm asking you is: Would
9 you agree with me that there are other times in
10 each one of the five reports where you have
11 inconsistencies in your report with what Dr. Bove
12 is saying in his five studies?

13 MS. JOHNSON: Objection to
14 form.

15 THE WITNESS: I wouldn't say
16 they're inconsistent. I would say that
17 he does not use appropriate methodology
18 to interpret his findings and I do, and
19 as a result, we come to different
20 conclusions.

21 BY MR. MANDELL:

22 Q. All right. So let me say it a
23 different way.

24 Would you agree with me that there

1 are examples, several examples at least, in each
2 of the five reports in which you find certain
3 analyses to be not meaningful and he finds certain
4 analyses to be meaningful; true?

5 A. That is true.

6 Q. And for each one of those instances,
7 you would agree that he was the primary author of
8 the study that is being interpreted by both you
9 and him; true?

10 A. That is true.

11 Q. And in each situation, you would
12 have an explanation for why you believe his
13 methodology is flawed; true?

14 MS. JOHNSON: Object to form.

15 THE WITNESS: It is not a
16 belief. It is a fact and it's backed up
17 by citations and references.

18 BY MR. MANDELL:

19 Q. Okay. I want to ask you about a
20 couple of specific studies, if you don't mind,
21 aside from the Camp Lejeune studies.

22 Do you -- strike that.

23 In your kidney cancer report, do you
24 in your section on TCE cite to an article by

1 McLaughlin 1987? Excuse me. 1986.

2 A. (Reviews document.)

3 I'm sorry. In kidney cancer?

4 Q. Yep.

5 A. And it's spelled M-a-c?

6 Q. M-c-L. McLaughlin.

7 A. I don't see it in my references.

8 Q. Okay.

9 THE COURT REPORTER: Exhibit

10 29.

11 (Document marked for

12 identification as Exhibit 29.)

13 BY MR. MANDELL:

14 Q. In looking at this study, would
15 you on page -- the second page that we have there.
16 If you look under the section for "Machinery and
17 electronics" on the left-hand side of the page
18 about five up?

19 A. Yes.

20 Q. Would you agree that there are
21 elevated SIRs for renal cell cancer cases?

22 MS. JOHNSON: Objection.

23 Foundation.

24 BY MR. MANDELL:

1 Q. And renal pelvic cancer cases?

2 MS. JOHNSON: Sorry.

3 MR. MANDELL: No, it's okay.

4 MS. JOHNSON: Objection.

5 Foundation.

6 THE WITNESS: Yes.

7 BY MR. MANDELL:

8 Q. And that study isn't cited in your
9 kidney cancer report; true?

10 A. That is true.

11 Q. Any particular reason why you
12 omitted that study with positive findings
13 -- excuse me -- positive findings?

14 A. (Reviews document.)

15 I would have to look as to the
16 reason why this was excluded.

17 Q. Okay. Do you know if you ever read
18 it?

19 A. I don't remember this particular
20 study.

21 Q. Okay. On page D-23, you cite
22 the -- this is kidney cancer. You cite the Pesch
23 study from 2000; true?

24 A. Yes.

1 Q. And would you agree with me that
2 none of the risk estimates that you cite here you
3 are statistically significant as you define them;
4 true?

5 A. Yes.

6 Q. Are you aware as to whether or not
7 there was any statistically significant results in
8 Pesch that you didn't cite?

9 A. (Reviews document.)

10 (Document marked for
11 identification as Exhibit 30.)

12 BY MR. MANDELL:

13 Q. I've marked as Exhibit 30 the Pesch
14 study, if you want to take a look, and I'm looking
15 particularly at page 17, "Electrical and
16 electronic equipment assembler," male and female.

17 A. (Reviews document.)

18 MR. MANDELL: Can we go off
19 the record while she's looking at it.

20 THE WITNESS: Sorry. What
21 was? Was there a question?

22 BY MR. MANDELL:

23 Q. You were reviewing so I didn't want
24 to interrupt your review. So tell me whenever

1 you're done.

2 A. I'm -- I'm done.

3 Q. Okay. Sorry about that.

4 Are we back on? Okay.

5 Is there any particular reason why
6 you didn't cite the odds ratios that were
7 statistically significant and only cited the ones
8 that weren't?

9 A. So in many instances I -- there were
10 many different risk estimates reported in the
11 study, and I chose to report the ones that I
12 thought were most informative. So these ones in
13 this table where there's, you know, looking at
14 different levels of exposure and specifically to
15 TCE were the most informative regarding TCE risks
16 specifically.

17 Q. Well, didn't -- you cited other
18 studies in your report for which use the same
19 occupationals -- occupations; true?

20 MS. JOHNSON: Objection.

21 Form.

22 THE WITNESS: I would have to
23 go back to look at --

24 BY MR. MANDELL:

1 Q. Sure.

2 A. -- specifically what occupations.

3 Q. So look at D-21. Well, no.

4 You were looking at Pesch; right?

5 And it's "Electrical and electronic equipment
6 assembler."

7 That's what we were just looking at
8 for males and females?

9 A. Yes.

10 Q. And turn to D-21 of your kidney
11 report, please.

12 Do you see Auperin --

13 A. Yes.

14 Q. -- 1994?

15 And in there, do you not cite
16 electrical and electronics workers? "Electrical
17 fitters and related electrical and electronics
18 workers" under TCE?

19 A. I do.

20 Q. So you cited it in that study; true?

21 A. Yes.

22 Q. And but for the Pesch study, you
23 cited only the nonstatistically significant
24 results and omitted the statistically significant

1 results; true?

2 A. Well, I did not base my decision on
3 what results to include on whether or not they
4 were statistically significant -- and actually
5 there is one statistically significant estimate in
6 the Pesch study in my report -- but on which
7 analyses provided the most information.

8 I mean, the studies looking at
9 electrical and electronic equipment assemblers is
10 not as informative as these analyses using the
11 exposure -- the job exposure matrix, and also
12 there's only 5 men and 11 women, leading to really
13 unstable risk estimates. So -- so it wouldn't
14 have added value to add those specific risk
15 estimates to my report.

16 Q. The risk estimate that you were
17 talking about as being statistically significant
18 in Pesch, which one are you talking about on D-23?

19 A. Or I guess it wasn't statistically
20 significant. It went --

21 Q. Right.

22 A. The lower confidence interval
23 started at 1.0.

24 Q. Okay. So but the bottom line is:

1 What you chose to do with Pesch is cite all of
2 these statistics -- 3, 6, 9, 12 of them -- that
3 are not statistically significant and didn't cite
4 the two that are in the study that are
5 statistically significant; fair?

6 A. Well, there's also plenty more not
7 statistically significant I also didn't cite.

8 So, again, I do not choose what to
9 report based on the result. I choose based on the
10 metric and the most informative metric. That is
11 what made it into my report.

12 Q. So based off of your metric for how
13 to insert risk ratios into your report, it
14 happened to be that you chose all the
15 nonstatistically significant ones but not the
16 positive one; true?

17 MS. JOHNSON: Objection.

18 BY MR. MANDELL:

19 Q. As a factual matter.

20 MS. JOHNSON: Objection.

21 Form.

22 THE WITNESS: As a factual
23 matter, I also did not report a bunch of
24 other nonstatistically significant ones.

1 BY MR. MANDELL:

2 Q. But you had cited 12 of them
3 already; true?

4 MS. JOHNSON: Objection.
5 Form.

6 THE WITNESS: There are two
7 sets of analyses stratified by males and
8 females that I put in my report that I
9 felt had the -- were the most informative
10 and included people in other analyses
11 that were just expressed differently.

12 BY MR. MANDELL:

13 Q. Could you look at page D-8 of your
14 kidney cancer report, please.

15 A. Yes.

16 Q. And in -- and this is the
17 Raaschou-Nielsen for kidney cancer and TCE?

18 A. Yes.

19 Q. And in that study, you cited a
20 number of different results, but neglected to cite
21 the general statistically significant results for
22 the time period of exposure prior to 1970; is that
23 true?

24 A. No, I have that statistically

1 significant results here.

2 Q. You have it for men only; true?

3 A. No, it's for men and women combined.

4 Q. Where? Can you show me where you're
5 talking about?

6 Oh, I see. Okay.

7 I'm going to mark this study. I'm
8 talking about a different result. So I think
9 that's the confusion and it's my fault. 31.

10 (Document marked for
11 identification as Exhibit 31.)

12 THE WITNESS: Thank you.

13 (Reviews document.)

14 BY MR. MANDELL:

15 Q. So if you look at -- oh, sure.

16 If you look at page 1186.

17 Under Men and Years of first
18 employment before 1970, do you see for renal cell
19 carcinoma there's an SIR of 1.7 for the 95 percent
20 confidence interval of 1.2 to 2.3?

21 I guess my first question is: Do
22 you believe you cited that statistically
23 significant result prior -- in your report?

24 MS. JOHNSON: Objection.

1 Form.

2 THE WITNESS:

3 (Reviews document.)

4 BY MR. MANDELL:

5 Q. If you're going to be more than
6 just -- and it's okay, we can go off the record,
7 but I just want to -- if you're going to be more
8 than like 15 or 20 seconds, then we'll just go off
9 the record.

10 A. If the question is did I report that
11 particular risk estimate, I reported one that was
12 similar and it looks like it was for men and women
13 combined.

14 Q. Did you cite that one?

15 A. No.

16 MS. JOHNSON: Objection.

17 Form.

18 BY MR. MANDELL:

19 Q. And if you look on page 1185. The
20 page before.

21 A. Yes.

22 Q. Do you see how in the study on the
23 top left-hand corner, it said:

24 "Thus, calendar year is a strong

1 predictor of TCE exposure of Danish workers, and
2 we would expect 4 to 5 times higher exposures in
3 the 1960s than in the 1980s."

4 Do you see that?

5 A. Yes.

6 Q. So they did a sensitivity analysis
7 for before 1970 and found this statistically
8 significant result; true?

9 A. Yes.

10 Q. And you didn't cite it; fair?

11 A. No. This is men and women separate,
12 and what I did is reported men and women combined,
13 which is statistically significant and in my
14 report.

15 Q. So you left out this statistically
16 significant result that was done in that
17 sensitivity analysis; true?

18 MS. JOHNSON: Object to form.

19 THE WITNESS: No, that is not
20 true.

21 BY MR. MANDELL:

22 Q. Is it in your report?

23 A. The authors reported men and women
24 separately and men and women combined and the

1 results were similar, and so rather than repeat
2 them all, which doesn't provide any more
3 information, I repeated them combined. I reported
4 it combined.

5 Q. Is that statistically significant
6 risk ratio for that particular sensitivity
7 analysis in your report?

8 A. As I said, the fact that it was
9 statistically significant is captured in the
10 analysis of men and women combined, even though
11 that specific number is not in my report.

12 Q. Okay. I want to ask you about your
13 benzene section of your report and your tables.

14 And would you agree with me that
15 your benzene section of your report and your
16 tables do not include the Partanen cite 1991?

17 A. Are we still in the kidney cancer
18 report?

19 Q. Correct, but benzene. I moved to
20 benzene.

21 A. (Reviews document.)
22 What was the year?

23 Q. 1991. You actually cite it for
24 kidney cancer and TCE on page C-36.

1 A. (Reviews document.)

2 Could you tell me if it was a case
3 control or a cohort study?

4 Q. I'm going to mark it.

5 THE COURT REPORTER: 32.

6 (Document marked for
7 identification as Exhibit 32.)

8 THE WITNESS: Thank you.

9 BY MR. MANDELL:

10 Q. Sure.

11 My question ultimately is: Partanen
12 is not in the benzene section. Tell me if you
13 agree with that.

14 A. I agree.

15 Q. Okay. And would you agree with me
16 that there were statistically significant results
17 in Partanen for benzene?

18 I'm looking at page 236.

19 A. (Reviews document.)

20 I'm sorry. I don't see benzene
21 here.

22 Q. See in the middle of the left page
23 cumulative exposure parts per million of benzene
24 equivalent and at the top parts per million

1 equivalent of benzene?

2 A. (Reviews document.)

3 I do see that.

4 Q. Okay. Do you see that for the
5 cumulative exposure, there is a monotonic
6 dose-response that ends with a 4.34 odds ratio
7 with a 95 percent confidence interval 1.15 to
8 16.4?

9 A. You would have to do a trend test to
10 determine whether that supported a monotonic
11 dose-response curve because those confidence
12 intervals are awfully wide.

13 Q. Would you agree with me that as it
14 is stated in that study that I -- that we printed
15 that at the lower levels it's 1.28, the medium
16 level 1.39, and the high level is 4.34?

17 A. I think it's inappropriate to just
18 list an odds ratio without the confidence
19 interval, and they all -- all the -- the first two
20 confidence intervals go very low below 0 and the
21 highest one is very wide and overlaps with the
22 other two.

23 Q. Okay. It shows a dose-response,
24 true, in this chart that we're looking at?

1 MS. JOHNSON: Objection.

2 Form.

3 THE WITNESS: No.

4 BY MR. MANDELL:

5 Q. Okay. Is your definition of
6 dose-response that it increases from low dose to
7 high dose?

8 A. Yes, but that has to be demonstrated
9 statistically. With confidence intervals that
10 wide, it could be a flat line.

11 Q. But that's -- but if you look at the
12 numbers in the study, that's what the numbers do.
13 They go up with increased exposure; true?

14 A. No. The confidence intervals all
15 overlap. So they don't go up. They overlap.

16 Q. The number that is used as the odds
17 ratio, that number on the paper that we're looking
18 at goes up with each level of exposure; true?

19 A. The point estimate gets higher as
20 the exposure gets higher, but you cannot conclude
21 that that supports dose-response without
22 considering the confidence interval and conducting
23 a trend test.

24 Q. Under any circumstance, would you

1 agree with me that the high level shows a
2 statistically significant 4.34 odds ratio?

3 A. I would say that is statistically
4 significant but very statistically unstable and,
5 hence, unreliable.

6 Q. All right. But you would call it
7 statistically significant; true?

8 MS. JOHNSON: Objection.

9 Form.

10 THE WITNESS: That is
11 statistically significant.

12 BY MR. MANDELL:

13 Q. And in your benzene section of your
14 report -- it's page 77 -- you state in the second
15 paragraph under Study Results:

16 "Only two studies reported
17 statistically significant estimates based on
18 duration, intensity, and/or frequency"; true?

19 A. Yes.

20 Q. But you didn't count Partanen; true?

21 A. It appears that I missed this study.

22 Q. Okay. What about the Hu study? You
23 cite that for TCE; true?

24 A. I'm sorry. I don't know to what

1 study you're referring.

2 Q. Hu 2002. If you look at your TCE
3 section.

4 A. (Reviews document.)
5 (Document marked for
6 identification as Exhibit 33.)

7 BY MR. MANDELL:

8 Q. Whenever you get a chance, it's
9 right there, Dr. Goodman.

10 And in particular, I'm looking at
11 page 160.

12 A. (Reviews document.)

13 Q. There's a chart has benzene on the
14 left-hand side under men 1.8 -- 95 percent
15 confidence interval 1.8 to 2.6; true?

16 A. Yes.

17 Q. And did you cite that in your
18 benzene section of your report?

19 A. (Reviews document.)

20 Q. We can go off the record if you
21 want. I just want to know if you cited it in your
22 benzene, the charts section of the report.

23 A. Oh, in the charts section? Sorry.
24 I wasn't looking.

1 Q. That's where you get the data from
2 to put in the report section in terms of how many
3 statistically significant results there are; true?

4 A. Yes.

5 Q. Okay. You do cite it in the body of
6 your report, but you don't cite it in your charts
7 and so, therefore, the two statistically
8 significant results that you put in your report
9 don't include Hu; true?

10 A. (Reviews document.)

11 Q. You want to go off the record?

12 A. No, I see it.

13 Q. Okay.

14 A. So it looks like -- I mean, what
15 you're saying is I neglected to put it in the
16 table, but I did have it in the text.

17 Q. Correct. Yeah.

18 You had it in the text, but you
19 didn't put it in the table; true?

20 A. I can -- it sounds like that -- that
21 was an oversight.

22 Q. Okay.

23 A. But I would --

24 Q. And so when you say you only had two

1 statistically significant results for benzene, it
2 actually now is up to four; right?

3 MS. JOHNSON: Objection to
4 form and foundation.

5 BY MR. MANDELL:

6 Q. Tell me if that's true.

7 A. (Reviews document.)

8 Where did I say that the two?

9 Q. It was the page we were just looking
10 at of your report in benzene.

11 A. I see that I say that.

12 Q. It's on page 77.

13 A. Right.

14 Q. You say only two studies reported
15 statistically significant estimates.

16 And if you go through your benzene
17 charts there --

18 A. Where does it say that "only"?

19 Q. It's the second paragraph under
20 Study Results.

21 A. Oh. So I must have identified Hu
22 later and then forgot to include it up there, but
23 I -- wait a minute. No, no, no.

24 That says "Of the 17 studies that

1 examined three levels of exposure," and Hu did not
2 examine three levels of exposure. That's why it's
3 not in that two studies in that.

4 Q. Do you have Hu in front of you?

5 A. Yes.

6 Q. Do you see on page 161 it did
7 analyze three levels of exposure; true?

8 A. Yes, it did.

9 Q. Okay. So just another over --
10 another oversight in terms of why you didn't
11 choose the statistically significant result?

12 MS. JOHNSON: Objection to
13 form.

14 THE WITNESS: There I do
15 discuss below that Hu had statistically
16 significant results on that page. I did
17 not -- I neglected to discuss this
18 dose-response here.

19 BY MR. MANDELL:

20 Q. For --

21 A. But that doesn't change, I mean, of
22 the dozens of studies. When you look at all the
23 studies overall, this was a small oversight.

24 Q. Is there any particular reason why

1 for the examples that we just pointed out those
2 studies were not utilized in your charts?

3 A. If that study isn't in the table,
4 that is a mistake.

5 Q. And so is it -- to the extent that
6 there are other mistakes in the other five reports
7 and more in the kidney cancer report, would your
8 answer be essentially the same, to the extent that
9 that's true, that it was just mistakes?

10 MS. JOHNSON: Objection to
11 form and foundation.

12 THE WITNESS: I would have to
13 look at every study and determine if a
14 study was excluded, if there was a reason
15 for its exclusion, or if like in this
16 case I have it in the text, but I did not
17 put it in the table.

18 BY MR. MANDELL:

19 Q. Do you think that any -- strike
20 that.

21 Do you think that one possible
22 reason for why that occurred was because there
23 were people that you had delegated the review of
24 epidemiology studies to for certain of the

1 diseases and certain of the chemicals?

2 MS. JOHNSON: Objection.

3 Form.

4 THE WITNESS: I think that we
5 reviewed hundreds of studies and, as a
6 result, sometimes small mistakes are
7 made. But that doesn't change, you know,
8 the fact that you identified a study that
9 was missing some information doesn't
10 change the state of the science or change
11 my conclusions.

12 BY MR. MANDELL:

13 Q. So you would never be critical of
14 any plaintiffs' expert that might have not put one
15 study or one result into a report; true?

16 MS. JOHNSON: Objection.

17 Form.

18 THE WITNESS: I would be
19 critical of someone that did not
20 represent the state of the science.

21 As I said, when you've got
22 dozens of studies and you leave out a
23 result from one study, that's -- that
24 doesn't necessarily -- that doesn't

1 change the conclusions.

2 But when you deliberately
3 cherry-pick and only discuss findings
4 that support your point of view and
5 ignore everything else and when you don't
6 consider study quality, that's not an
7 objective evaluation of the science.

8 BY MR. MANDELL:

9 Q. And that's what your interpretation
10 of what the plaintiffs' experts did is what you're
11 saying?

12 MS. JOHNSON: Objection.
13 Foundation.

14 THE WITNESS: So I only
15 evaluated the -- the plaintiffs' expert
16 reports for Parkinson's and all of the
17 issues with their evaluations are
18 discussed in my Parkinson's report.

19 BY MR. MANDELL:

20 Q. Okay. I want to ask you a little
21 bit about the Camp Lejeune studies again.
22 Different types of questions, though. So I'm
23 going to ask you about each one of the five
24 diseases in question.

1 Starting with bladder. In bladder
2 on page C-33. This is your chart again, bladder
3 cancer report.

4 A. What page?

5 Q. C-33.

6 I just want to -- I'm going to ask
7 kind of a general question. I think it applies to
8 most of the disease -- most of the studies, the
9 five Camp Lejeune studies that we're talking
10 about.

11 But the question is this.

12 Are you on C-33?

13 A. Yes.

14 Q. This is the Bove 2014b; true?

15 A. Yes.

16 Q. And it actually should be A because
17 it's talking about Marines and civilian -- Marines
18 and Navy personnel?

19 A. As I said, the lettering came from
20 the order it was when it was first discussed in
21 the report. So it doesn't really.

22 Q. Yeah, I'm not -- I'm not quibbling
23 over it.

24 I'm just saying, when it says 2014b,

1 we're talking about 2014a; true?

2 True?

3 MS. JOHNSON: Objection.

4 Form.

5 THE WITNESS: No, I think

6 that's confusing.

7 BY MR. MANDELL:

8 Q. Okay. So what you're -- doesn't
9 matter.

10 Under the Weaknesses section of the
11 Covariates Considered, where did you get these
12 confounders or covariates to use for bladder
13 cancer?

14 Meaning you say did not control for
15 or consider prior cancer treatment, chronic
16 bladder inflammation, personal or family history.

17 Where did you get those from to use
18 as confounders to say they should have or should
19 not have been accounted for?

20 A. Those are in my -- my Method section
21 and in -- well, both in the description of bladder
22 cancer and risk factors for bladder cancer and
23 also it's in the -- in the Method section.

24 Q. Okay. Well, let me ask you this

1 one.

2 Under that Weaknesses section, it
3 says "Did not control or consider for other
4 potential occupational exposures"; true?

5 A. Yes.

6 Q. What other potential occupational
7 exposures are you -- do you believe are causally
8 associated with bladder cancer such that they
9 needed to look for it in the confounders?

10 A. (Reviews document.)

11 MR. MANDELL: Why don't we go
12 off the record just while she's looking.

13 THE WITNESS: No, I --

14 BY MR. MANDELL:

15 Q. Are you ready?

16 A. As I said on page 20, "Certain
17 industrial occupations involve exposures to a
18 variety of chemicals, including solvents, I deemed
19 studies that considered the potential for exposure
20 to several chemicals in their analyses stronger
21 than those that did not."

22 Q. What -- what chemicals or what
23 occupations?

24 A. So I wasn't specific and what I

1 would say is, when I have these categories of
2 strengths and weaknesses, it's not -- they're not
3 all equal in terms of how they -- they impact the
4 interpretation of study results.

5 And so the only point there is that
6 if people are exposed to certain chemicals in
7 their job, they might also be exposed to other
8 chemicals, and so you can't tease out which
9 chemical is causal. So that's all I meant by
10 that. It's a very high-level statement. It's
11 not -- it's a deal-breaker.

12 Q. Can you cite to one other potential
13 occupational exposure that you believe is causally
14 associated with bladder cancer?

15 A. Not as I sit here.

16 Q. Okay. How about for NHL? Page C-22
17 of your report.

18 A. (Reviews document.)

19 Again, it wasn't that other
20 chemicals are necessarily risk factors for NHL.
21 It's just that when you're looking at, you know,
22 occupational exposures, you can't assume that a
23 particular exposure is -- is causal if it's also
24 correlated with other exposures.

1 Q. So what you're saying is: You put
2 it as a weakness for the study that they didn't
3 account for it, even though you can't cite to a
4 single other potential chemical or occupational
5 exposure that would actually make a difference;
6 true?

7 MS. JOHNSON: Objection.

8 Form.

9 THE WITNESS: As I said, I
10 explain my reasoning in all of my reports
11 for including it. That it's possible and
12 often that people that are exposed to one
13 chemical are exposed to several chemicals
14 in an occupational setting.

15 BY MR. MANDELL:

16 Q. But you put it as a weakness under
17 NHL even though you can't cite to a single
18 potential chemical or occupational exposure that
19 actually would have made a difference if it was
20 accounted for; true?

21 MS. JOHNSON: Objection.

22 Form.

23 THE WITNESS: Again, as I
24 explain, yes, I'm not listing any

1 particular chemical. I'm just saying
2 it's possible and something that should
3 at least be considered.

4 BY MR. MANDELL:

5 Q. Same thing for leukemia?

6 A. Yes.

7 MS. JOHNSON: Objection.

8 Form.

9 BY MR. MANDELL:

10 Q. And for Parkinson's disease, I have
11 one other question for you. It's on page C-1.

12 A. Yes.

13 Q. You list there as a weakness that
14 they didn't control for, among other things,
15 smoking; true?

16 A. Yes.

17 Q. Do you believe smoking is causally
18 related to Parkinson's disease?

19 A. There is some evidence that smoking
20 can prevent Parkinson's.

21 Q. So if anything, it would help; true?

22 A. It could just -- it could alter the
23 association.

24 Q. Okay. And so you list that as a

1 weakness; true?

2 A. Yes.

3 Q. Okay. Would you agree that there
4 are governmental agencies that have cited --
5 strike that.

6 How would you list, in your opinion,
7 the strength of the five Bove studies that --
8 Dr. Bove studies that we marked? What would you
9 say is the most high quality down to what you
10 think is the least high quality?

11 MS. JOHNSON: Objection to
12 form and foundation.

13 THE WITNESS: I think they're
14 all very low quality because there's no
15 direct -- there's no information on
16 individual exposures, and so without
17 knowing what any person is exposed to,
18 one can't calculate any risks with
19 respect to that person. People.

20 BY MR. MANDELL:

21 Q. Are there any studies that you cite
22 in any of your reports in which you find that they
23 are of high quality and don't account for
24 individual exposure?

1 MS. JOHNSON: Objection to
2 form.

3 BY MR. MANDELL:

4 Q. Strike that.

5 When you say that Dr. Bove didn't
6 account for individual exposure, what are you
7 talking about?

8 A. So -- so as noted by ATSDR in the
9 Public Health Assessment for Camp Lejeune, there's
10 a lack of water sampling data before 1982,
11 uncertainty about when contamination first
12 occurred in water supplies.

13 There was a reliance on the testing
14 of finished water for leaving the treatment plant
15 rather than the point of exposure for estimating
16 exposure. Limited information about site-specific
17 exposure parameters. A lack of indoor air
18 samples. Uncertainty intrinsic to the use of
19 models to predict inputs to the assessment.

20 Q. Would you agree that Dr. Bove did
21 consider individual exposures?

22 A. No.

23 Q. So can you turn to 2014a.

24 A. Can you just -- if you could say the

1 year and if it's incidence and mortality, that
2 would be helpful.

3 Q. 2014 mortality Marines.

4 A. Okay. Yes, got it.

5 Q. Yeah. And if you turn to page --
6 it's chart 7 or -- yeah, chart 7. Chart 6 and
7 chart 7. They're all on page 10.

8 A. Okay.

9 Q. Dr. Bove categorized individual
10 people according to their exposures to different
11 chemicals; true?

12 A. (Reviews document.)

13 So what it says is each individual
14 was assigned the estimated monthly average
15 contaminant concentration in the drinking water
16 system serving the individual's residence during
17 the period of residents.

18 Q. Right.

19 A. So there is no information on the
20 water source for any particular person. There's
21 no information on how much any person drank and
22 so.

23 Q. So there's no dose calculation, but
24 they did look at individuals; true?

1 A. But what I'm saying is, is that
2 it's -- it's not meaningful because you have no
3 idea if an individual exposure was overestimated
4 or underestimated. Just residing on the base for
5 a certain month tells you nothing about how much a
6 person actually drank or what the water was when
7 they drank it.

8 Q. Would you agree that Dr. Bove
9 classifies that potential limitation as biasing
10 towards the null?

11 A. I don't know how he classifies it,
12 but as I discuss in my report, that would not
13 necessarily bias towards the null. It could bias
14 in any direction, and if there's no association,
15 then a lack of association would be 1.0. So that
16 means it wouldn't be biased towards the null.

17 Q. So if Dr. Bove said that, then you
18 would disagree with it; true?

19 A. Yes.

20 Q. Do you know if there are -- strike
21 that.

22 I think I had asked you how would
23 you classify the Bove studies in terms of quality
24 high to low; right?

1 A. Yes.

2 Q. Is it what you're -- is what you're
3 saying that you classify them all the exact same?

4 A. What I'm --

5 Q. Or is there any type of hierarchy
6 you can give?

7 MS. JOHNSON: Objection.

8 Form.

9 THE WITNESS: What I'm saying
10 is all these issues -- all of these
11 studies have the issue of we don't know
12 how much water any particular person
13 drank or exactly how much of any chemical
14 was in that water when -- when a person
15 drank that water, and so because of that,
16 we don't -- the exposures are uncertain
17 for every individual.

18 BY MR. MANDELL:

19 Q. Do you know if any governmental
20 agencies have cited positively the Bove studies?

21 A. I know that NRC said any study using
22 these data would be unreliable.

23 Q. Are you aware that EPA has said that
24 all of -- strike that -- the two Bove 2014

1 mortality studies scored acceptable for data
2 quality?

3 A. I'm not --

4 MS. JOHNSON: Objection.

5 Form.

6 THE WITNESS: I'm not sure to
7 what you're referring.

8 BY MR. MANDELL:

9 Q. Okay. If the United States EPA has
10 said that the two Bove 2014 studies scored
11 acceptable for data quality, you would disagree
12 with that?

13 A. I don't know what EPA means by "data
14 quality."

15 Q. Have you ever seen them grade
16 studies?

17 MS. JOHNSON: Objection.

18 Form.

19 BY MR. MANDELL:

20 Q. Meaning EPA grade studies in terms
21 of, like, high, low, medium quality?

22 A. Yes.

23 Q. And so if EPA evaluated the Bove
24 2014 study as a "high overall quality

1 determination," would you disagree with that?

2 A. I would be very surprised and I
3 would like to see the analysis to understand how
4 EPA came to that conclusion.

5 Q. Okay. Would you disagree with it?

6 A. Yes.

7 THE VIDEOGRAPHER: 6-43.

8 MR. MANDELL: 6-43?

9 THE VIDEOGRAPHER: Yeah. You
10 wanted to know how long you have left.

11 MR. MANDELL: Let's go off the
12 record for one second.

13 THE VIDEOGRAPHER: The time is
14 5:32 PM. We're going off the record.

15 (A recess was taken.)

16 THE VIDEOGRAPHER: The time is
17 5:33 PM. We're going off the record.

18 Going back on the record. Sorry.

19 Please proceed, counsel.

20 BY MR. MANDELL:

21 Q. In the charts that you have -- we've
22 looked at some of them, but you do this quality --
23 you do a quality assessment of the Bove studies,
24 as you do with all the studies; true?

1 A. Yes.

2 Q. And would you agree that you list
3 many different strengths of those studies; true?

4 A. Yes.

5 Q. And then you list weaknesses as
6 well; true?

7 A. Yes.

8 Q. In the 2018 article that we had
9 talked about before, the one that you wrote, do
10 you remember how you determined study quality?

11 MS. JOHNSON: What exhibit is
12 that number?

13 22.

14 MR. MANDELL: 22. Thank you.

15 MS. JOHNSON: That's all
16 right.

17 BY MR. MANDELL:

18 Q. It's on the second page, to the
19 right side, second paragraph.

20 Let me see if I can sum it up, and
21 you tell me if I'm wrong.

22 Basically what you did was, you
23 assigned a score for each of the different factors
24 that you were looking at. If there were more

1 positive factors than negative factors, you found
2 it was a Tier 1 study, and if it had more
3 negatives than positives, you found it was a
4 Tier 2 study.

5 Is that generally speaking true?

6 A. Well, I think with a caveat that, as
7 it says, these scores are only a crude measure of
8 quality. And it was just a way so we could kind
9 of look at studies in two different categories,
10 but within the category we still looked at with
11 particular study attributes. Because it was
12 possible that even if there were more strengths
13 than weaknesses, there could still be, you know,
14 weaknesses that kind of outweighed the strengths.

15 And so we -- we did that to
16 categorize them, but then, as it says, we still
17 considered individual study quality when we looked
18 at each individual study.

19 Q. Would you agree with me that for
20 every single Camp Lejeune -- of those five Camp
21 Lejeune studies that there were more strengths
22 than weaknesses in your section C charts?

23 A. I have not counted them, but in the
24 end the weaknesses, and particularly this issue

1 with exposure assessment, outweigh the strengths.

2 Q. But if you were to go through and
3 add up the bullet points, you would agree that
4 there are more strengths than weaknesses according
5 to the way you did it in the 2018 at least to
6 categorize it as tier -- they all would be
7 categorized as Tier 1 studies; right?

8 MS. JOHNSON: Objection.

9 BY MR. MANDELL:

10 Q. Under the 2018 analysis?

11 A. I wouldn't agree with that.

12 Q. Okay. Is it fair to say that you
13 have some familiarity with these five Camp Lejeune
14 studies?

15 A. Yes.

16 Q. Is there something that if you were
17 retrospectively looking at the situation, which
18 you are, that you would have said to Dr. Bove in
19 terms of his study design that he should have done
20 differently --

21 MS. HURT: Objection.

22 BY MR. MANDELL:

23 Q. -- for any one of the five studies?

24 MS. HURT: Objection to form

1 and foundation.

2 THE WITNESS: I agree with
3 NRC that you can't get past these
4 weaknesses in the exposure assessment,
5 and so that these studies would not be
6 informative.

7 BY MR. MANDELL:

8 Q. My question, I think, is a little --
9 is intended to be a little different, which is not
10 what can you do with them now, but my question to
11 you is: What would you have -- would you have
12 told him to do anything differently?

13 A. Well, I would first say: I don't
14 think you should conduct these study. I don't
15 think they're going to provide information so you
16 can judge causality. But if you insist on doing
17 them, you should use statistical analyses that
18 have been validated and that are accepted in the
19 epidemiological community, and not try to change
20 or make up a new kind of statistical analysis so
21 you can somehow make findings that are not
22 significant suddenly appear to have meaning.

23 Q. I know that you disagree with the
24 way that he analyzes the meaningfulness of it, but

1 aside -- and I should have asked this.

2 So aside from that issue, is there
3 anything that you can sit here and say now that --
4 that you think he should have done differently
5 with the study design?

6 MS. JOHNSON: Objection.

7 Form.

8 THE WITNESS:

9 (Reviews document.)

10 MR. MANDELL: Why don't we go
11 off the record for a second just because
12 we're getting down on time.

13 THE VIDEOGRAPHER: The time is
14 5:39 PM. We're going off the record.

15 (A recess was taken.)

16 THE VIDEOGRAPHER: The time is
17 5:40 PM. We're going back on the record.
18 Please proceed.

19 THE WITNESS: And your
20 question is, how would I tell him to
21 conduct the study differently?

22 BY MR. MANDELL:

23 Q. Correct.

24 A. I think the only answer is to tell

1 him to go back in time and make sure you have the
2 correct estimates of chemicals in the groundwater;
3 that you have accurate estimates of how much water
4 individuals drank and when and what the chemicals
5 were in that water. Information on potential
6 confounding, like, better data on smoking,
7 particularly for smoking-related diseases.

8 And then, I mean, you said about
9 study design, statistics is part of the study
10 design, and use validated methods to analyze your
11 data and interpret your -- your results in light
12 of that.

13 Q. Do you believe that there are any
14 limitations of any of these studies that would
15 bias the results toward the null?

16 MS. JOHNSON: Objection.

17 Form.

18 THE WITNESS: As I said in my
19 report, there are certain situations
20 when, on average, results will be biased
21 towards the null, but one cannot
22 guarantee in any case that results are
23 biased towards the null, and there has to
24 actually be an association for the

1 results to be biased towards the null.

2 So to assume that there is an
3 association and that it's biased is
4 basically circular logic.

5 BY MR. MANDELL:

6 Q. So there is not one part of any one
7 of these studies that you believe that you could
8 say to any degree of certainty would bias towards
9 the null; true?

10 A. You could not --

11 MS. JOHNSON: Objection.

12 Form.

13 THE WITNESS: You could not
14 say with certainty for any study that the
15 results are biased towards the null.

16 BY MR. MANDELL:

17 Q. All right. Do you believe that
18 there was an increased amount of people at Camp
19 Lejeune that were diagnosed with the five
20 conditions that are at issue in this case as
21 compared to Camp Pendleton?

22 A. I would -- all of my --

23 MS. JOHNSON: Objection.

24 Form.

1 THE WITNESS: All of my
2 analyses are in my report and my opinions
3 are there. In general, Bove looked at
4 associations compared to Camp Pendleton.
5 They looked at internal comparisons and
6 they compared it with the U.S. general
7 population, and there were no consistent
8 findings for any health outcome across
9 analyses.

10 BY MR. MANDELL:

11 Q. Right.

12 So is your answer that you don't
13 believe that there was any increased risk of the
14 individuals that were exposed to the water at Camp
15 Lejeune as compared to Camp Pendleton in any one
16 of the five Bove studies?

17 Is that what you're saying?

18 A. That's not what I'm --

19 MS. JOHNSON: Objection.
20 Form.

21 THE WITNESS: -- what I'm
22 saying.

23 BY MR. MANDELL:

24 Q. Okay. What are you saying?

1 A. I'm saying that for me to answer
2 that, I would have to go back and look in all my
3 reports and see what was said or look in the
4 original studies.

5 But I can tell you sitting here that
6 whether or not there were associations comparing
7 Camp Lejeune to Camp Pendleton, the associations
8 weren't consistent across all analyses, which
9 suggests a lack of causation because one would
10 expect to see consistent associations across
11 studies and also consistency across the literature
12 as a whole.

13 Q. So is your explanation that each one
14 of any of the positive associations that exist in
15 those five Camp Lejeune studies just happen to be
16 because of chance and/or because of some other
17 issue with the study?

18 MS. JOHNSON: Objection to
19 form.

20 THE WITNESS: Yes, because
21 these associations were not seen
22 consistently across studies.

23 BY MR. MANDELL:

24 Q. Okay. How does the business of

1 Gradient negotiate contracts with its clients?

2 A. That's a very broad question.

3 MR. MANDELL: Okay. Well, we
4 marked Exhibit 34, which is a second
5 production of documents.

6 (Document marked for
7 identification as Exhibit 34.)

8 BY MR. MANDELL:

9 Q. With regard to your Schedule A and
10 it's Bates USA Government 61 through 144.

11 Do you have those documents in front
12 of you?

13 A. I do.

14 Q. And if you look at, for example,
15 page 137, would you -- and 137, 138, 139, do you
16 see how like on 137 the contract effective date is
17 9/16/22?

18 A. Yes.

19 Q. And that -- that was the first
20 contract; is that right?

21 A. I know it was in 2022. I'm not sure
22 of the date.

23 Q. Fine.

24 On page 139, you give under the

1 Schedule of supplier -- Supplies/Services, you
2 give, like, a unit price and then a change to the
3 unit price.

4 Do you see that?

5 A. Yes.

6 Q. And is it fair to say that that
7 previous unit price is the quote that you gave to
8 the Department of Justice in terms of, like, how
9 much it was going to cost Gradient?

10 A. No.

11 Q. Okay. So see at the bottom of the
12 page where it says:

13 "The total invoices shall not exceed
14 the ceiling/funding amount"?

15 A. Yes.

16 Q. Where is the ceiling/funding amount?

17 A. It's my understanding that the way
18 that contracts with DOJ work is that you -- you
19 get a certain budget, and the way Gradient works
20 is we bill by the hour. And so as we get close to
21 that budget, then we make a request to increase
22 the budget.

23 Q. Right.

24 And do you know how many times that

1 Gradient has made a request to increase their
2 budget with the DOJ start from the time of
3 September of '22 till the most recent time?

4 A. I don't know.

5 Q. Would the number 12 sound right to
6 you? Or excuse me. Eight sound right to you?

7 MS. JOHNSON: Object to form.

8 THE WITNESS: It's possible.

9 I don't know.

10 BY MR. MANDELL:

11 Q. Okay. Would you agree that the
12 pages we were just looking at was one of those
13 changes?

14 MS. JOHNSON: Object to form.

15 BY MR. MANDELL:

16 Q. Do you see how on page 139 it says
17 change 73,500; current 523?

18 A. Yes.

19 Q. And then at the bottom left it says:
20 "The total invoices shall not exceed
21 the ceiling/funding amount"?

22 A. Yes.

23 Q. And then if you look at Bates 61 to
24 74. It's the first pages.

1 If you look at, like, page 63,
2 there's another change from 1.2 to 1.6?

3 A. Yes.

4 Q. That's happened a number of times
5 over the course of the years; is that true?

6 A. Yes.

7 Q. Since March -- as of March when we
8 looked at that March 9th bill, Gradient, the
9 business of Gradient had billed the Department of
10 Justice \$4.3 million as of that date; true?

11 A. Yes.

12 MS. JOHNSON: Objection.
13 Foundation.

14 BY MR. MANDELL:

15 Q. How much work has been done by the
16 business of Gradient since the March 9, 2025
17 invoice?

18 MS. JOHNSON: Objection to
19 form.

20 THE WITNESS: I don't know as
21 I sit here.

22 BY MR. MANDELL:

23 Q. Okay. How much work have you done?

24 A. I don't know as I sit here.

1 Q. Can you give me a ballpark?

2 A. I wouldn't want to guess. That
3 will -- it will all be on the invoices.

4 Q. Okay. Well, you prepared for this
5 deposition; true?

6 A. Yes.

7 Q. Would you have read all of the five
8 of your reports?

9 A. Yes.

10 Q. And do you know how many pages those
11 total?

12 A. Over a thousand.

13 Q. Okay. And you would have read every
14 page of that?

15 A. Yes.

16 Q. Did you sit down and prepare with
17 other material besides those reports?

18 A. Yes.

19 Q. So are we talking 50 hours? A
20 hundred hours?

21 A. Again, I don't want to speculate.
22 It will be on the invoice the precise number.

23 Q. Okay. Well, the invoices for your
24 time basically, just as we looked at, a lot of the

1 time just say the word "research"; true?

2 A. Sometimes.

3 MS. JOHNSON: Objection to
4 form.

5 THE WITNESS: Sometimes.

6 BY MR. MANDELL:

7 Q. So what work? Can you tell me what
8 actually work you've done since that time?

9 A. I've done a lot of reviewing my
10 reports and some independent studies. I've also
11 done a little work on getting ready for the next
12 track. Started some of that research.

13 Q. Okay.

14 MS. JOHNSON: Objection to the
15 extent that she is entering to discussing
16 privileged materials.

17 BY MR. MANDELL:

18 Q. My question is this: Do you have a
19 ballpark for how much time you believe you've
20 spent since March 9th?

21 A. You asked me that and my answer
22 remains, no, I don't know.

23 Q. Okay. How about how many other
24 people from the business of Gradient have worked

1 on this project since March 9th?

2 A. I couldn't give you a number.

3 Q. Okay. A number?

4 A. Again, there the April invoice
5 should be available in the next week or so and
6 that will have the hours.

7 Q. Do you, as you sit here today, have
8 a current intention to increase that ceiling cap,
9 that is, the current ceiling cap as you sit here
10 right now? Do you know?

11 A. I would have to look to see where we
12 are to -- to make that determination.

13 Q. Is there any question that you're
14 going to need to increase that ceiling cap?

15 MS. JOHNSON: Objection to
16 form.

17 THE WITNESS: I -- I don't
18 know what the cap is as I sit here, and I
19 don't know what I'll need to get through
20 this track.

21 BY MR. MANDELL:

22 Q. As you sit here today, would you be
23 willing to tell DOJ that you will not increase
24 that cap?

1 MS. JOHNSON: Objection to
2 form.

3 THE WITNESS: I don't.

4 MS. JOHNSON: And privilege.

5 THE WITNESS: All I can say
6 is I will do the work that's needed to
7 prepare for trial and to work on the next
8 track.

9 MR. MANDELL: Let's go off the
10 record for two seconds.

11 THE VIDEOGRAPHER: Time is
12 5:51 PM. We're going off the record.

13 (A recess was taken.)

14 THE VIDEOGRAPHER: The time is
15 5:58 PM. We're going back on the record.
16 Please proceed, counsel.

17 MR. MANDELL: I have no
18 further questions at this time. I
19 understand the seven hours is up.

20 I will say that we may ask for
21 more time just given the limitations and
22 the significance of what we're talking
23 about in terms of paperwork and exhibits,
24 and I thought we all really tried to get

1 things done in seven hours.

2 I'm not saying we are. I'm
3 just saying there's a possibility. So
4 I'm just putting it on the record.

5 I don't know if you guys have
6 anything to put on the record, but I have
7 no further questions because we're at the
8 seven-hour mark.

9 MS. JOHNSON: All right.
10 We'll proceed under CMO 17 and the
11 requirement for negotiation prior to
12 deposition, understanding that you --
13 what you have said, the sentiment.

14 However, the United States has
15 no questions for Dr. Goodman and I think
16 we're good.

17 MR. MANDELL: Thank you very
18 much.

19 THE WITNESS: Thank you.

20 MS. JOHNSON: Thank you.

21 THE VIDEOGRAPHER: The time is
22 5:59 PM. We're going off the record.

23 (Signature not waived, the
24 deposition concluded at 5:59 PM.)

ERRATA SHEET

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

Page No. _____ Line No. _____ Change to: _____

Page No. _____ Line No. _____ Change to: _____

Page No. _____ Line No. _____ Change to: _____

Page No. _____ Line No. _____ Change to: _____

Page No. _____ Line No. _____ Change to: _____

Page No. _____ Line No. _____ Change to: _____

Page No. _____ Line No. _____ Change to: _____

Page No. _____ Line No. _____ Change to: _____

Page No. _____ Line No. _____ Change to: _____

Page No. _____ Line No. _____ Change to: _____

Page No. _____ Line No. _____ Change to: _____

DECLARATION UNDER PENALTY OF PERJURY

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

I declare under penalty of perjury that I have read the entire transcript of my Deposition taken in the captioned matter or the same has been read to me, and the same is true and accurate, save and except for changes and/or corrections, if any, as indicated by me on the DEPOSITION ERRATA SHEET hereof, with the understanding that I offer these changes as if still under oath.

Signed on the _____ day of _____, 2025.

JULIE E. GOODMAN, PHD

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

CERTIFICATE OF REPORTER
DISTRICT OF COLUMBIA)

I, Denise Dobner Vickery, a
Registered Court Reporter and Notary Public of
the District of Columbia, do hereby certify that
the witness was first duly sworn by me.

I do further certify that the
foregoing is a verbatim transcript of the
testimony as taken stenographically by me at the
time, place and on the date herein set forth, to
the best of my ability.

I do further certify that I am
neither a relative nor employee nor counsel of
any of the parties to this action, and that I am
neither a relative nor employee of such counsel,
and that I am not financially interested in the
outcome of this action.



DENISE DOBNER VICKERY, RPR, RMR
CERTIFIED REALTIME REPORTER
Notary Public in and for the
District of Columbia

My Commission expires: March 14, 2028

&	1.28 370:15	1101 3:20	15 8:7 130:18
& 3:3 201:22	1.3 270:19	111 179:9	199:24 366:8
0	271:15	112 179:11,11	150 115:4
0 370:20	1.39 370:16	180:16	15207 413:20
0.96 270:19	1.5 173:9	114 180:16	154,969 352:11
0000000001 7:2	1.6 405:2	1185 366:19	16 8:8 233:14
0000000061	1.7 365:19	1186 365:16	16.4 370:8
11:21	1.75 270:20	11:16 131:19	160 373:11
00897 1:4	271:16	11:28 131:22	161 376:6
02903 3:9	1.8 373:14,15	11th 179:3	164,000 58:1
08/17/2022	10 7:13 8:14	12 6:9,12,15,18	17 7:5 8:15
11:20	26:12 38:12	6:21 7:1,3,20	133:5 200:3
1	86:18 87:23	101:11,13	245:1,3 331:16
	88:1,4 89:23	363:2 364:2	359:15 375:24
1 6:9 12:4	101:24 114:12	404:5	410:10
17:12,24 79:6	114:15,17	12:30 220:8	176 150:6
89:22 90:15	130:18 171:6	12:51 220:7	178 8:4
92:17 115:19	240:8 253:16	13 6:3 8:1 9:17	18 8:20 10:6
118:17 132:2	256:9 346:7,9	103:11,12	271:4,6
144:22,23	349:12 388:7	112:2	19 9:1 251:4
152:8,24 207:5	100 159:13	132 8:14	278:18,20,22
207:11 213:5	160:5 167:11	137 402:15,15	1960s 367:3
242:8 261:3	168:14 169:5,7	402:16	1970 364:22
268:19 294:3	101 7:20	138 402:15	365:18 367:7
306:5 385:11	103 8:1	139 402:15,24	1973 56:15
394:2 395:7	107008-4	404:16	1980s 367:3
1-5 77:11	233:20	14 8:4 29:11	1982 57:10
1.0. 362:23	10:09 68:23	178:22,24	387:10
389:15	11 7:16 8:5	179:2 260:24	1986 357:1
1.15 370:7	9:13 98:8,10	262:3 413:24	1987 11:3
1.2 57:9 349:11	98:17 181:11	14-17 41:21	357:1
365:20 405:2	240:15 362:12	144 11:21	199 8:7
	1100 2:16 3:20	402:10	1991 11:15
	5:11 12:14		368:16,23

<p>1994 361:14 1997 58:9 1998 9:5,8 287:22 1:39 221:2,9 1:56 234:13</p>	<p>2002 11:18 373:2 2003 11:12 20036 3:21 2005 282:1 2005b 276:11 2007 210:5 2008 299:6,15 2009 201:20 211:18 2010 57:24 2012 9:21 46:19 47:5,17 48:15,21 59:10 94:7 2013 101:5,24 2014 8:19 10:12 39:10 344:20 388:3 390:24 391:10 391:24 2014a 242:9 344:21 352:6 352:15 381:1 387:23 2014b 242:1 244:18 247:14 380:14,24 2015 112:11 2016 92:3 93:4 93:17 99:18 2017 9:13,17 201:20 321:14 327:8,12,15</p>	<p>330:22 331:3,7 334:10,14,17 336:15,23 337:2,4 339:20 340:3,8 2018 10:17 238:22,24 241:6 256:3 293:17 304:15 344:22 345:7 345:20 346:8 393:8 395:5,10 2018a 239:16 2018b 238:4,16 239:15 240:2 240:21 2018s 239:5 2019 25:2 327:13,20 331:5,14,24 334:16 336:21 202.616.4447 5:13 202.742.5404 3:22 2020 7:15 9:2 25:1,2 58:2 88:17 2021 7:19 99:12 2022 7:10 43:20 107:4 116:6 402:21</p>	<p>2023 8:3 143:22 144:5 2024 8:5,14,23 10:23 144:12 179:4 181:11 234:20 337:3 344:24 348:13 349:1 350:2 2024b 231:4 232:2 233:9 348:14 2025 1:16 2:8 6:11,14,17,20 6:23 10:6 12:11 118:3 120:6 121:9 150:11,23 151:4,7 260:24 262:3 342:16 405:16 412:16 2028 413:24 205 205:14 21 9:7 91:15 253:23 259:18 289:19 361:3 361:10 219 4:8 22 9:10,18 220:5 293:12 293:14 321:13 383:16 393:13 393:14 404:3 221 6:4</p>
2			
<p>2 6:12 12:4 17:14 39:8 79:9,13 89:22 90:15 118:17 261:3 267:20 268:6,7,20 288:18 294:3 296:10 299:13 394:4 2-4 205:14 2.3 365:20 2.4. 288:15,18 2.6 373:15 2.8 173:14 297:17 20 8:23 9:4 171:6 186:5 193:2 259:17 288:9,11 366:8 382:16 2000 11:7 276:4 327:14 345:19 358:23 20005 2:17 5:12 12:15</p>			

<p>23 9:14 321:9 321:11 358:21 362:18 2300 155:19 233 8:8 236 369:18 237,000 58:4 24 7:15 9:19 11:12 88:17 91:1 251:13 330:3,5,6,8 245 8:15 25 7:19 10:1 99:12 120:4 159:24 253:8 343:7,9,10,15 252 9:3 279:1 26 10:7 119:10 119:24 120:9 344:10,19 352:22,23 27 10:13 241:24 344:12 344:23 271 8:20 27601 4:19 278 9:1 28 7:10 9:9 10:18 43:19 150:16 289:24 344:14 345:1 288 9:4 289 9:7</p>	<p>29 1:16 2:8 11:1 12:11 357:10,12 293 9:10 29440 4:9 2:00 234:16 2:13 245:14 2:17 245:17 2a 285:17</p> <hr/> <p style="text-align: center;">3</p> <hr/> <p>3 6:15 12:5 17:16 45:23 89:22 90:15 118:18 125:2 125:10 145:5 220:4 238:12 238:12 267:21 268:5,21 294:4 349:12 363:2 3.2. 305:18 30 8:3 11:4 159:24 359:11 359:13 31 11:8 237:21 237:24 240:16 253:21 261:3 365:9,11 32 11:13 230:22 369:5,7 321 9:14 33 11:16 373:6 380:2,5,12</p>	<p>330 9:19 34 11:19 402:4 402:7 343 10:1 344 10:7,13,18 357 11:1 359 11:4 36 368:24 365 11:8 369 11:13 37 59:2 373 11:16 39 255:15 392 299:13 393 305:16 306:13 312:19 394 315:20 395 311:7 319:10 396 298:3,22 3:11 287:14 3:19 287:17 3:21 289:16 3:23 289:21</p> <hr/> <p style="text-align: center;">4</p> <hr/> <p>4 6:18 9:6 12:5 17:18 89:23 90:15 118:9 119:2 125:2,10 127:14,15 183:3 259:17 294:4 367:2</p>	<p>4,321,996.36 116:7,11 118:3 120:17 4.1. 306:14 4.3 139:22 140:17 141:3 141:23 142:23 405:10 4.34 370:6,16 372:2 4.7 319:12 40 41:21 401.273.8330 3:10 402 11:19 403 7:2 17:24 404.915.8886 4:20 4062 5:11 41 231:16 430 118:2 45 7:11 255:2,6 47 122:22 49 345:14,16 4:18 344:7 4:34 344:16</p> <hr/> <p style="text-align: center;">5</p> <hr/> <p>5 4:18 6:21 12:5 17:20 89:23 90:15 91:16 115:19 131:4,7,8 152:8 207:5</p>
---	---	---	--

211:5 213:5 253:17 259:18 294:4 349:2,5 362:12 367:2 50 131:7,9 299:8 302:17 315:7 348:11 352:4 406:19 50/50 300:15 300:17 311:5 312:16 314:5 315:12 317:22 318:4,13,23 319:18 320:1 523 404:17 59 132:2 5:32 392:14 5:33 392:17 5:39 397:14 5:40 397:17 5:51 409:12 5:58 409:15 5:59 410:22,24	6-13 9:22 6-43 392:7,8 60 115:12,16 61 402:10 404:23 63 405:1 7 7 6:11,14,17,20 6:23 7:3 12:6 18:1,1 50:24 89:23 90:24 110:16 258:22 294:4 388:6,6 388:7 73,500 404:17 7305923 1:24 74 404:24 76 77:11 77 372:14 375:12 785 144:14 7:23 1:4 8 8 7:5 17:3,5,7 18:5,15 26:12 29:14 55:9 89:23 294:4 352:16 364:13 8,000 56:19 803 9:3 812 4:18 843.278.5852 4:10	87 7:13 9 9 7:11 35:19 45:17,19 89:23 98:19 99:16 111:12 118:3 120:6 346:7,8 363:2 405:16 9/16/22 402:17 90 137:20 166:9,21 167:12 95 270:19 271:16 365:19 370:7 373:14 96 271:16 975 156:6 98 7:16 165:15 165:19 980 156:6 9:59 68:20 9th 121:9 405:8 407:20 408:1 a ability 187:3 215:8 413:11 able 41:11 47:22 48:4 57:7 73:23 224:19 343:16 above 244:2 282:17 295:7 295:13 296:9	298:12,16 299:15 300:15 300:19,21 301:3,12,21 302:23 303:2 305:6 307:12 308:13 309:14 309:21 310:23 310:24 312:10 313:18 314:2 317:14 318:3 321:20 330:23 331:4 336:16 339:21 340:5,9 349:11 absolutely 30:16 82:18 215:9 abstract 74:17 75:6,7 294:21 294:23 academic 53:16 academies 27:18 28:6,13 28:19,23 281:20 academy 186:24 acc 22:8,17,19 24:5 27:14 28:24 29:7 42:15 137:6 accept 229:3
6 6 7:1 12:6 17:22 19:15 88:23 89:23 90:15 94:17 112:6 125:6,6 144:18 258:19 258:21 294:4 363:2 388:6			

<p>acceptable 391:1,11</p> <p>accepted 9:13 10:6 11:12 332:17 333:8 349:23 350:4 351:15 396:18</p> <p>accessible 93:20</p> <p>accordance 275:20 283:3</p> <p>account 174:17 237:15 384:3 386:23 387:6</p> <p>accounted 381:19 384:20</p> <p>accounting 275:18 280:13</p> <p>accurate 20:6 150:21 154:18 156:12 169:5 174:24 285:12 398:3 412:8</p> <p>accurately 151:16</p> <p>accused 59:10</p> <p>ace 94:6,7 95:1 95:5</p> <p>achieve 340:5</p> <p>acknowledge 50:23</p> <p>acknowledging 272:8</p>	<p>acquired 141:11 192:1</p> <p>acronym 139:4 139:13</p> <p>act 40:10 57:24 58:11 95:24 169:22 203:23</p> <p>acting 67:9</p> <p>action 74:24 112:10 148:8 166:14,15 168:2 185:16 186:12 189:21 192:4 316:16 316:16 317:11 317:20 318:5,7 318:17,18 413:14,17</p> <p>actions 169:20 316:23</p> <p>activities 31:22 35:23 96:4 145:12 189:9</p> <p>activity 122:17</p> <p>actual 37:24 87:10 114:6 148:3 154:11 250:13 255:2 257:6 265:10 270:7 321:6 347:3</p> <p>actually 30:9 30:18 54:18 66:2 73:18</p>	<p>75:19 77:4 83:5 84:21 89:14 94:22,24 96:21 118:6 141:12 146:23 151:12 154:18 154:19 161:2 162:9 166:6 170:5 192:24 214:21 232:5,8 235:20 236:14 250:7 257:22 257:23 300:3 302:9 304:18 317:2,12 318:18 341:18 347:12 350:20 362:4 368:23 375:2 380:16 384:5,19 389:6 398:24 407:8</p> <p>acute 332:7,18 333:8,19,19,21</p> <p>ad 7:7 93:1</p> <p>add 120:16 156:5,8 224:9 362:14 395:3</p> <p>added 362:14</p> <p>adding 268:23</p> <p>addition 92:14 164:19 172:6 313:7</p> <p>additionally 341:8</p>	<p>address 53:11 134:14 236:12</p> <p>addressed 45:6 54:15 55:6 134:4</p> <p>addressing 20:15 21:10 45:3</p> <p>adequate 72:20 162:17 234:20 235:10 237:17</p> <p>adjunct 201:16 202:2</p> <p>adjust 247:6 249:21</p> <p>adjusted 247:14 248:9 270:4</p> <p>adjusting 247:10</p> <p>admitting 272:11</p> <p>adult 330:24</p> <p>advancement 96:1</p> <p>advice 117:12</p> <p>advocate 7:20 36:11 101:17 103:18,22 270:9</p> <p>affect 315:24</p> <p>affiliation 42:14</p>
---	---	--	--

afternoon 6:4 221:1	116:5 140:10 196:18 216:8	325:20,22 326:2,18,22	agreeing 292:12
age 242:18 243:8	228:10 231:24 232:19 235:3	327:8,14 328:11,16	agreement 150:5 172:7 273:14
agencies 16:23 28:8 281:13 285:21 286:10 322:6 331:24 386:4 390:20	251:19 258:5 259:7 269:3,4 269:22 270:8 272:3,5 275:9 275:11,16	329:4,11,14 330:22 331:9 331:13,15,20 331:22 332:2,9 332:16,22	ahead 67:17 205:17 338:20
agency 55:20 57:24 90:8 149:11,18 150:2 214:10 274:16,20 320:4 354:8	276:6,10,15,16 276:20 277:6,9 279:7,12,20,23 280:1,19 281:6 281:24 282:8 282:22,23,24 283:2,10,18,22 283:23 284:17	333:13,16,24 334:5,9,17,19 335:4,7,9,13,15 335:24 336:3,4 336:7,10,14,17 336:19,21,22 337:2,4,7 338:4 339:12	air 36:3 56:7 57:24 58:11,12 58:15 59:2,5 59:15 301:18 387:17
agent 11:5 26:15	284:18,21,23 285:3,9,19 286:12 287:21 290:6,7,10,15 290:21 291:15 291:20,22 292:3 293:1,8 299:23 304:23 305:1 312:9 314:16 315:3,8 315:10,13 318:4 320:11 320:21 322:4,6 322:9,13,15,16 322:22,23 323:3,18,22,24 324:8 325:5,16	339:20 340:15 340:21 342:4,7 342:8,12 346:5 354:18 355:9 355:24 356:7 357:20 359:1 368:14 369:13 369:14,15 370:13 372:1 386:3 387:20 389:8 393:2 394:19 395:3 395:11 396:2 404:11	al 8:13,19,22 9:12 10:5,12 10:23 11:3,7 11:11,15,18
agents 11:15 25:8,23 274:24 291:3		337:2,4,7 338:4 339:12 339:20 340:15 340:21 342:4,7 342:8,12 346:5 354:18 355:9 355:24 356:7 357:20 359:1 368:14 369:13 369:14,15 370:13 372:1 386:3 387:20 389:8 393:2 394:19 395:3 395:11 396:2 404:11	alberta 96:17 aligning 55:20 alliance 136:20
ago 14:1 29:11 43:20 64:15 121:12,15 141:12 163:12 163:22 226:16 227:15 307:20		357:20 359:1 368:14 369:13 369:14,15 370:13 372:1 386:3 387:20 389:8 393:2 394:19 395:3 395:11 396:2 404:11	allocated 125:14,16
agree 15:15 21:1 22:12,13 30:5 36:24 38:3 42:23 48:7,9,10,12,13 48:19,23 59:18 60:16 63:2 81:5 94:14		357:20 359:1 368:14 369:13 369:14,15 370:13 372:1 386:3 387:20 389:8 393:2 394:19 395:3 395:11 396:2 404:11	allocation 129:2 allow 219:6 allowed 116:16 alter 385:22 alternative 68:12 304:5 305:2 326:15
		agreed 28:11 97:5 283:16 297:16	ambient 10:2 295:5 298:10 301:11 304:2 306:8 313:3 316:5 342:17

amendment 11:19 america 5:3 american 22:20 23:10,21 36:1 55:16,16 57:8 59:12 91:9,11 94:5 105:5 170:20,24 186:23 americans 58:1 aml 332:11,12 332:15 333:12 334:1 amls 334:2 amount 26:13 116:8 122:8 141:6 156:11 166:23 173:23 234:20 297:21 399:18 403:14 403:16 404:21 amounts 46:15 122:12 amyotrophic 340:18 341:11 analyses 27:6 52:1 92:4 112:20 150:2,2 247:7 254:12 256:6 280:16 280:17 346:12 356:3,4 362:7 362:10 364:7	364:10 382:20 396:17 400:2,9 401:8 analysis 9:12 26:8 67:7 113:2 137:7 149:7 165:14 201:22 203:6,9 209:16 210:13 210:16 212:13 214:18 216:4,7 224:16 227:21 228:3 232:7,9 233:4 235:9,23 236:2,19 237:5 237:14,17 248:10 249:22 253:16 272:3 275:20 278:7,9 279:9 280:14 293:21 294:15 294:18 295:11 303:9 309:10 309:23 313:15 346:16 351:22 367:6,17 368:7 368:10 392:3 395:10 396:20 analyze 283:20 350:4 376:7 398:10 analyzed 156:16 165:7 243:14 295:23	analyzes 396:24 analyzing 165:6 272:19 317:10 animal 40:15 40:21 41:1 51:21 52:21 75:14 76:13,20 148:15 308:2 311:12 312:3 312:12,20 313:16 314:18 317:19 326:3 animals 51:5 51:16 52:7 148:7 283:6 284:15,24 291:24 293:2 324:17 anll 334:1 anlls 334:2 anna 5:8 anna.e.ellison 5:16 annually 58:3 answer 15:4,12 26:24 27:3 41:14,24 48:3 53:8 63:11,13 66:15 67:15,17 69:4 97:12 117:10,12,20 117:22 121:3	126:8,20 138:7 167:2,18 168:20 179:14 188:2 197:1 204:23 206:12 216:24 256:18 258:2 277:5 285:21 303:17 309:18 310:5 315:17 377:8 397:24 400:12 401:1 407:21 answered 67:13 184:11 303:15 315:16 answering 63:15 answers 181:4 181:5 anticipated 284:12 285:5 anybody 47:15 49:24 77:2 83:20 84:4 89:15,20 118:20 136:9 151:19 169:12 182:3 185:3,6 188:10 189:6 190:17,19 212:19 222:14 222:19 223:1,2 263:20 269:22
--	---	--	--

30:24 31:6	407:21	282:2,3 283:4	79:8,9,13
32:4,6,7,9,12	asking 14:7	285:19 286:5	105:5 204:8
32:13,18,23	20:21 21:21	291:3 332:4	272:14 274:13
33:3,4,4,6,8,9	24:3,9 63:8,22	387:9,19	274:14 276:23
33:11 34:15	123:12,14	392:23 395:1	304:1 306:8,15
35:10,13 46:5	142:14,17	396:4	307:10,17
64:20,23 65:1	168:7 194:24	assessments	308:7,10,11,22
65:4 66:7,9,23	205:8 227:6	274:24 275:19	309:17,23
66:24 67:1,10	250:12,14,17	280:14	323:8 324:1
67:12,24 69:5	251:5 256:22	assigned 115:5	328:22 329:23
69:7,17 72:4	268:4 282:19	115:9 123:22	333:20 335:21
72:13,21 75:4	283:21 287:3	125:10 217:21	337:12 338:16
76:2,4 82:7,9	308:5 331:7	218:7,12,13	340:17 341:2,9
94:8,20 95:2	351:17,19	227:10,13	345:24 346:24
aside 30:15	355:8	388:14 393:23	347:1,7 385:23
142:16 186:10	asks 124:6	assignment	389:14,15
356:21 397:1,2	aspects 20:15	348:22 349:13	398:24 399:3
asked 26:17	21:11 59:2	assisting 7:7	associations
41:23 62:13	265:15 307:24	associate 197:7	20:17 21:13
64:12 65:9,13	assembler	associated 79:7	36:11 42:16
65:18 69:3	359:16 361:6	80:5 81:15	75:14 269:13
70:13 71:10,19	assemblers	94:11 100:9	279:9,10,12,18
72:2 78:4 81:1	362:9	104:14 271:15	306:20,23
84:15 85:5	assert 30:1 31:9	271:20 272:5	307:1 308:8
104:6 124:17	asserted 31:11	326:5 346:17	309:24 310:16
128:18 135:24	assess 79:17	347:8,11	311:2 336:11
163:12 167:23	316:3	348:21 382:8	337:8,14,20
172:18 180:13	assessment	383:14	338:6,12 341:6
184:11 200:18	9:14 20:16	associates	341:13,19,20
206:1 223:10	21:11 22:4	158:20	342:7 346:13
230:1 278:22	27:22 35:23	associating	400:4 401:6,7
278:23 280:11	186:4 214:9	329:18	401:10,14,21
303:15 315:15	231:7 241:1,9	association	assume 14:16
389:22 397:1	275:21 276:12	59:4 74:12,14	30:12 141:8

<p>182:11 189:13 211:19 273:15 273:17 383:22 399:2 assumed 277:16 278:13 assuming 81:12 102:22,24 103:2 209:22 225:17 280:16 323:17 assumption 211:21 assumptions 264:16 asthma 9:11 104:14 106:8 293:20 294:16 294:17 295:6 295:23 296:16 296:20,23,24 297:1,2,7 298:11 301:11 304:3 306:2,4 306:9 307:1,11 308:12 315:24 ats 6:11,14,17 6:20,23 atsdr 9:14 10:17 209:20 210:4,6 211:10 212:3,8 238:4 238:16,21,23 239:4 240:20</p>	<p>256:2,6 275:5 320:12 321:14 322:16 327:8 327:13,24 328:6,18,23 330:22 331:3,5 331:7,14,16,24 334:9,14,16,17 336:15,18,21 336:23 337:2,3 337:4 339:20 340:3,8 346:5 346:8 350:6,8 353:22 354:3 354:11 387:8 atsdr's 211:11 329:12 attached 6:7 attaching 108:2 attachment 8:7 267:19,20,21 268:5,6,7 attachments 266:20 267:16 267:23 attack 93:1 attacking 44:5 attacks 58:2 attempt 33:21 34:8 44:2 206:4 attempted 35:2 94:6 133:16</p>	<p>attempting 43:15 attention 122:18 attorney 260:24 attorneys 268:23 attributed 324:1 attributes 394:11 auperin 361:12 author 22:3 24:5 80:15,17 96:18 110:4,6 164:21 342:15 356:7 authored 22:7 22:17 23:15,23 27:15 authoritative 275:19 280:13 authority 139:9 139:12 authors 23:18 23:19 59:24 60:22 80:7 88:24 89:23 92:10 97:17,23 98:3 99:1 165:16 294:4 294:11 354:6 367:23</p>	<p>automatically 273:15 available 316:2 328:7 329:16 330:12 408:5 avenue 3:20 average 388:14 398:20 aware 16:6,11 16:15 43:9 87:19 88:7,19 91:9,10 98:6 100:14 113:23 121:6 122:11 128:14 136:2 137:4 138:16 183:2,12 184:5 198:9 238:21 239:2,4 259:20 260:8 263:20 266:24 267:17 267:23 281:13 329:21 342:14 342:20 343:2 354:12 359:6 390:23 awfully 370:12</p> <p style="text-align: center;">b</p> <p>b 226:6 239:2 239:20 242:9 242:12 baby 101:7 102:2</p>
---	--	--	--

<p>back 18:14 41:17 68:23 77:7,9 117:24 131:22 212:6,6 218:18 221:9 230:24 234:16 240:13 245:17 276:3 287:17 289:21 291:14 344:16 360:4 360:23 392:18 397:17 398:1 401:2 409:15 backed 356:16 background 190:11,11 bailey 132:15 132:17 bailey's 136:5 ballpark 125:1 144:7 155:20 156:3 406:1 407:19 ban 262:19,24 263:7,17 264:15 265:4 265:11,24 banning 263:21 264:1 base 8:12,17 10:10,17,21 186:9 256:10 362:2 389:4</p>	<p>based 24:20 74:18 75:23 76:5,11,12,19 80:21 82:10 92:7,22 96:9 137:18 186:2 188:5 203:22 207:21 211:16 211:21 212:3 214:7,7 264:15 270:2,21 275:17 276:16 277:1 279:3 280:12 283:6 284:13 300:8 309:17 320:13 323:7 324:14 340:5 363:9,9 363:12 372:17 bash 3:19 basically 145:15 202:2 212:17 235:22 239:17 272:8 273:7 274:6 282:13 303:2 333:11 393:22 399:4 406:24 basing 211:24 basis 58:11 63:6,15,18 117:15 133:7 166:1 204:4 290:23</p>	<p>bates 17:23 119:9 144:23 261:2 402:10 404:23 bearing 21:6,8 beginning 77:13 258:14 behalf 36:11 38:13 67:10 105:15 109:22 139:16 153:10 159:16,19 160:9,22 164:9 203:18 belabor 280:5 belief 71:23 356:16 believe 39:20 42:16 47:14 54:15 64:14 84:9 90:9 104:20 108:17 111:4 115:4 116:9 127:20 128:4 130:9,10 131:1 135:22 136:17 137:6 137:15 139:6 141:15 150:16 160:8 162:23 169:11 175:16 188:24 189:23 191:10 194:1 196:8,12 202:4</p>	<p>204:2 212:3 216:11,23 217:2,15 218:18 221:13 230:1 232:12 233:9 241:7 243:5 248:20 256:24 257:5 257:24 258:12 259:6 261:8,13 263:18,24 273:14 284:1,8 284:9 291:21 299:5,20 316:16 330:7 332:10 356:12 365:22 382:7 383:13 385:17 398:13 399:7 399:17 400:13 407:19 believed 54:24 78:8 81:4 296:3 believes 104:20 282:1 325:16 bell 4:4 belllegalgrou... 4:11,12,13 belongs 46:1 beneficial 38:14,17,24 39:3,6 71:16 71:24 72:13,18</p>
---	--	--	--

benefit 140:16 142:22 250:9 benefiting 94:10 100:6 benzene 9:4,7 136:14 137:8 178:2 184:8 201:5 222:4 287:20,24 290:7 331:16 331:18 332:7 332:18 333:8 333:12,18,18 333:21 336:22 336:24 337:8 338:6,17 368:13,15,19 368:20 369:12 369:17,20,23 370:1 372:13 373:13,18,22 375:1,10,16 best 112:12 200:4 263:19 291:1 413:11 better 25:7,10 398:6 beyond 46:3 bias 16:4 231:12 233:4 235:22 236:2 236:19 237:5 270:4 324:2 389:13,13	398:15 399:8 biased 59:11 80:4 81:14 211:13 389:16 398:20,23 399:1,3,15 biases 319:15 319:21 biasing 389:9 big 74:13 83:10 177:10 203:5 214:14 326:14 biggest 177:7 biliary 334:23 bill 24:19 61:9 61:16,19 62:3 123:10 124:4 124:15 125:12 125:14 132:18 136:5 147:4 152:23 403:20 405:8 billboards 93:5 99:20 billed 116:7 118:9 119:1 122:13,22 127:8 128:13 129:11 130:6,7 139:24 141:23 155:16,17,20 156:1 405:9 billing 17:22 120:20 122:12	123:7,17 125:5 125:9,11 130:21 136:4 142:24 144:14 144:17,20 146:4 150:10 151:15 152:11 154:6 183:3 266:19 billings 69:20 120:9 122:19 127:24 129:2 150:15 bin 303:11 bioassays 76:20 biobank 10:5 342:19 biologic 75:23 76:5 82:10 biological 83:4 308:3 315:21 biologically 317:1 bird 262:20,24 263:4 bisphenol 55:2 101:6 102:2 bit 34:4 44:14 90:23 102:12 159:2 212:24 235:21 278:5 281:2 379:21 black 59:4 176:24 269:6	blackstone 176:23 177:1,2 177:13,23 178:5,14 179:13,16 181:20,21 182:8,23 183:7 183:13 184:5 184:14 bladder 6:9 17:13 185:24 187:5,8,18 188:7,10,14,18 188:19 195:13 197:14,15 207:13 222:11 222:21 226:6 229:7 231:16 232:14 233:5,7 233:10 234:24 236:2 251:12 253:20,24 326:23 327:1 327:10,22 328:5,9,14 329:19,24 345:7,9,15 346:1,13 347:10 348:12 348:21 349:9 350:16 380:1,1 380:2 381:12 381:16,21,22 382:8 383:14
---	--	--	--

bless 219:3 blood 222:22 332:19 333:10 333:13 board 41:1 44:15 94:6 95:1 105:22 106:6,15,20 134:20 141:8 141:10,14,16 186:22 194:5 198:23 223:3 boards 95:22 128:19 body 26:19 193:15 294:22 306:23 313:9 374:5 boisclair 3:3 bonuses 144:4 144:9 boon 155:11 156:10 223:21 bosses 175:15 boston 164:4 178:8 180:6 bottom 19:16 31:24 55:11 58:22 105:2 110:17 111:2 112:7 119:18 120:2,9 179:11 227:2 231:3 248:9 251:6	280:19 298:4 306:18 346:8 362:24 403:11 404:19 bought 175:5 boundaries 23:13 bove 8:13,19 10:12,23 231:4 231:19 232:1 232:13 242:1 243:20 244:18 346:16,16,24 348:8 349:1 350:1 351:21 352:16 355:11 380:14 386:7,8 387:5,20 388:9 389:8,17,23 390:20,24 391:10,23 392:23 395:18 400:3,16 bove's 354:21 355:6 bpa 51:5,11,16 52:3 53:6,17 101:6 102:2 bradford 191:21 214:9 214:18 216:4,6 break 14:20 15:1,5 67:19 68:17 131:15	137:9 210:2 219:24 229:23 287:9,11 291:14 343:21 343:24 344:19 breakdown 145:6 breaker 383:11 breathing 313:10 breed 46:1 briefly 175:3 201:14 bring 18:13 brings 62:19,24 broad 196:21 221:14 296:22 402:2 broadly 22:5 196:24 bromide 39:11 39:22 brought 65:23 bruce 46:13 49:11 50:2 bryson 4:16 btex 10:2 342:17 budget 171:12 403:19,21,22 404:2 building 28:16 bullet 39:8 395:3	bunch 88:24 189:18 191:16 363:23 burning 56:16 56:20 business 24:15 34:22 114:2 115:3,17 116:6 119:1 122:13 122:21 123:2,5 123:18 124:2 124:13 127:8 132:11 137:10 139:23 175:3 176:18 180:10 401:24 405:9 405:16 407:24 businesses 184:4 busy 226:1 <hr/> c <hr/> c 12:1 19:3 230:22 231:16 237:21,24 238:12,12 240:15,16 241:24 242:8 246:9 251:4,13 253:8,21,23 357:5,6 368:24 380:2,5,12 383:16 385:11 394:22
--	--	---	--

<p>calculate 386:18</p> <p>calculated 140:9 165:5 168:19 170:4 211:15</p> <p>calculation 228:8 388:23</p> <p>caldwell 7:19 90:6,10 97:2,4 99:3</p> <p>caldwell's 90:3</p> <p>calendar 366:24</p> <p>california 99:10</p> <p>call 32:5 45:5,8 47:15 83:20,23 85:13 226:17 232:10 260:16 272:24 305:6 308:23 309:21 372:6</p> <p>called 13:16 26:15 46:16 48:14,20 51:12 53:1 78:16 160:21 183:14 221:4 258:5 307:11 308:13</p> <p>calling 47:3</p> <p>calls 150:18 189:14</p>	<p>camp 1:7 8:12 8:17 9:16 10:10,17,21 12:16 14:3 40:9,17 51:21 203:22 207:17 207:24 208:24 209:18 210:18 211:6,16 212:2 212:9 228:5,12 228:14,22 229:5,9 239:5 262:18 277:22 278:3,7,13 347:8 348:18 348:19 349:13 352:10,12,17 352:17 353:6 356:21 379:21 380:9 387:9 394:20,20 395:13 399:18 399:21 400:4 400:14,15 401:7,7,15</p> <p>canada 11:18 96:18</p> <p>cancer 6:9,12 8:8 10:3 11:2,8 11:13 17:13,15 39:12 57:8 59:12 169:21 185:24 186:1 186:20,21</p>	<p>187:5,8,18 188:8,11,14,18 188:19 190:17 190:20,23 195:9,13,15 197:15,16 199:8,8 207:13 207:13 218:3 222:12,21,22 224:7 225:3,23 226:6,6 229:6 229:7 230:23 231:16 233:3,5 233:7,10,10 234:24 235:1 236:2 240:3,11 241:8 244:20 247:18,20 248:14,19 249:11 253:15 254:13 255:5 256:8,17 274:21,24 276:24 277:2 279:10,11,13 279:21 280:2,4 280:9,9,20 286:21,23 292:20 320:8 320:15,18 322:7,18,19,24 323:9 324:1,9 324:15 326:23 327:1,10,22</p>	<p>328:5,9,14 329:19,20,24 334:22,23 335:5,10,14,21 342:18 345:7,9 345:15 346:1 346:13 347:10 348:12,21 349:9,10 350:16 353:7,7 353:7,9 356:23 357:3,21 358:1 358:9,22 364:14,17 368:17,24 377:7 380:3 381:13,15,22 381:22 382:8 383:14</p> <p>cancerous 102:16</p> <p>cancers 9:16 222:7,23 240:8 256:9 280:18 292:9,11,18,19 320:5</p> <p>candidates 7:5 18:24</p> <p>cannon's 263:11</p> <p>cap 408:8,9,14 408:18,24</p> <p>capetown 97:11</p>
---	---	---	---

<p>capri 92:8</p> <p>captioned 412:6</p> <p>captured 368:9</p> <p>carbon 59:4</p> <p>carcinogen 276:12 282:2,2 282:7 283:3 287:24 290:8 293:6</p> <p>carcinogenic 9:4,7 275:12 275:21,22 276:5,11,13,17 277:3,10 281:6 282:4,9 283:5 284:5,13 285:16 323:5 324:14 325:10 325:18,23</p> <p>carcinogenicity 284:14 290:24 291:17,24 293:2 324:17 333:18 334:20 335:20</p> <p>carcinogens 286:11 291:5</p> <p>carcinoma 11:5 11:16 365:19</p> <p>cardiovascular 166:16</p> <p>care 288:24</p>	<p>cared 185:9 188:13 190:22</p> <p>career 171:1</p> <p>carolina 1:2 12:18 90:8 97:3</p> <p>case 11:6 28:21 40:5,17 42:5 51:20,21 52:21 67:11,12,24 69:8 71:10 112:19 113:11 113:16,18 115:19 117:5 118:10,14 119:2 122:4 126:22,23 127:5,9,14 130:20 132:12 136:4,10 137:24 138:21 138:22 139:19 139:24 144:14 147:22 148:13 149:8 155:16 155:21 156:11 157:14,15,17 158:4 161:1 163:24 164:2 179:6 182:24 183:4 188:18 188:21 192:5 197:20 204:5 205:3 206:6,9</p>	<p>206:20,22 207:16 209:1,3 209:11,14 212:15 215:10 221:20 227:24 228:11,22,24 253:11 257:23 261:12 263:9 268:19 274:17 277:22 278:7 292:10 300:22 301:2 369:2 377:16 398:22 399:20</p> <p>cases 1:10 30:10 32:9 40:3 41:24 64:20 66:8,19 69:6 72:7 126:1,3 128:11 135:16,17 137:23 138:11 138:18,24 161:5 188:24 201:3,6,7 215:20 216:11 216:12 217:6 249:20 357:21 358:1</p> <p>cast 59:1</p> <p>categories 153:18 286:10 383:1 394:9</p>	<p>categorize 394:16 395:6</p> <p>categorized 154:7 275:12 388:9 395:7</p> <p>category 76:8 82:13 148:15 235:18 246:20 291:2,4,4 296:22 394:10</p> <p>causal 76:5 82:10 83:5 204:8,13 295:4 296:4 298:9,18 299:1,1,17,18 300:12 301:9 301:19,19 304:4,8,10,19 304:21 307:2 307:11 308:12 310:24 311:9 311:13,20 312:4,10 313:18 314:19 317:14 323:8 328:22 332:6 337:11 341:1 341:19,22 342:10 383:9 383:23</p> <p>causality 316:10 317:13 318:6,19 342:11 396:16</p>
---	--	--	--

causally 207:15 382:7 383:13 385:17 causation 67:6 67:22 186:7 191:20 204:18 206:2 282:15 282:24 285:8 305:2 310:14 310:18,19,24 312:10 313:18 314:24 319:1,1 319:14,20 320:17 323:2 326:16 327:10 329:5,14 330:24 334:11 334:15 336:16 336:24 338:13 339:21 340:10 341:15 401:9 cause 25:17 66:23 67:8,23 68:2,3 69:7 71:7 72:21 73:21 75:10 77:5 82:18 83:2 84:10 133:18 165:9 165:20 166:7 166:11,16,20 166:24 168:5 169:21 170:5 209:24 228:23	273:16,18,18 273:22 277:1 284:23 286:23 296:24 322:18 333:12 336:5,6 caused 59:14 66:24 67:12 69:7 81:4 83:8 162:5 165:17 207:24 228:13 229:8 causes 65:19 66:11 68:12 72:14 78:10 81:18 165:7 286:20 294:17 296:15,19 322:19 332:18 333:8,18 335:20 caveat 394:6 cdc 47:21 48:14 48:18,21 49:3 49:5 ceiling 403:14 403:16 404:21 408:8,9,14 cell 11:5,13,16 357:21 365:18 center 36:13 44:23 45:12 87:7,13 92:5 99:18	centers 46:18 47:3,16 354:7 certain 21:3 25:17 39:22 75:8 124:16 164:23 196:20 219:20 227:9 227:10,11 265:13,18 267:16 284:24 339:15 356:2,3 377:24 378:1 382:16 383:6 389:5 398:19 403:19 certainly 15:1 133:19 283:19 certainty 228:21 399:8 399:14 certificate 413:1 certification 194:6 certifications 198:17,23,24 223:4 certified 2:21 186:22 413:21 certify 413:5,7 413:12 cervical 353:8 chain 19:24 20:6	chan 201:17 chance 150:7 245:21 324:2 339:15 373:8 401:16 change 25:19 28:7 216:8,9 224:10 225:4,5 225:8,8,11,24 310:21 376:21 378:7,10,10 379:1 396:19 403:2 404:17 405:2 411:3,5 411:7,9,11,13 411:15,17,19 411:21,23 changed 58:9 217:23 226:3 changes 306:2 404:13 412:9 412:12 characteristics 214:4 characterizati... 303:5 characterize 20:11 characterized 276:12,17 323:5 chart 224:21 230:23 238:12 370:24 373:13
--	---	---	--

<p>380:2 388:6,6 388:6,7 charts 212:8 230:24 235:4 252:23 373:22 373:23 374:6 375:17 377:2 392:21 394:22 check 96:21 136:23 checked 214:5 219:11 chemical 11:14 19:24 20:6 22:3,6,23 27:20 35:23 36:15 37:1 39:13 42:14,19 102:14,16 161:7 165:7,9 165:17,20 166:20,23 168:4 169:21 204:12 209:18 223:8 224:22 240:21 241:4 241:11,15 242:3,20 246:22 275:10 275:10 281:4 295:11 317:10 383:9 384:4,13 384:18 385:1 390:13</p>	<p>chemicals 7:12 7:22 11:17 23:2,14 25:8 25:17,20,21,22 26:8 29:17 52:3 89:7 93:20 100:4 101:19 136:15 157:14 164:22 166:6,11 177:19,24 184:6 187:4,7 197:20 204:8 204:14 207:15 207:23 212:2 224:13 227:11 227:13 228:21 230:3 236:12 274:17 378:1 382:18,20,22 383:6,8,20 384:13 388:11 398:2,4 chemistry 22:20 23:11,21 55:17 170:20 170:24 cherry 379:3 children 46:16 104:14 chloride 136:14 178:2 184:8 201:5 290:22 291:16,23</p>	<p>292:18 293:6 chlorinated 325:8 choose 363:8,9 376:11 chose 110:11 111:5 266:4 269:22 360:11 363:1,14 chronic 326:3 332:6 381:15 chung 202:19 cigarette 70:15 76:6 82:11 cigarettes 84:10 112:13 113:14,15 cir 349:15 circular 399:4 circumstance 371:24 citations 356:17 cite 61:16 262:13 270:14 356:24 358:21 358:22 359:2,8 360:6 361:15 363:1,3,7 364:20 366:14 367:10 368:16 368:23 372:23 373:17 374:5,6 383:12 384:3</p>	<p>384:17 386:21 cited 22:14 59:21 60:18,21 61:11 62:15 87:15 93:24 358:8 360:7,17 361:20,23 364:2,19 365:22 373:21 386:4 390:20 cites 92:20 cities 56:20 57:4 60:2 citing 100:5 city 56:21 civilian 8:9,15 10:19 242:10 346:2 380:17 civilians 346:18 347:9 cl 240:9 claim 31:16 71:7 102:18 161:15 162:16 164:11 353:20 354:14 claimed 16:7 54:16 68:12 162:5 claiming 7:21 26:1 101:18 272:13 350:20 353:17,18</p>
--	--	--	--

claims 16:18 33:12 65:4 67:2 161:3 164:10 354:15 clarify 256:18 clarity 131:3 class 112:10 202:7,16 203:4 203:5,7,8,10,13 classes 194:22 202:23 203:2 classification 287:1 classifications 337:24 classified 291:4 classifies 389:9 389:11 classify 32:22 324:21 389:23 390:3 clean 57:23 58:11 59:5 277:4 clear 67:4 95:10 99:4 217:1 218:23 227:5 277:14 286:14 302:14 329:11 335:2 343:14 345:18 345:24 346:23 347:7 354:10	clearly 76:10 81:21 332:17 333:7 354:4 client 107:13 129:10 189:13 clients 19:23 20:4,5 32:7 46:3 55:14,17 55:24 56:1,3 127:23 130:5 402:1 climate 104:3 clin 114:19 clinical 319:12 clips 254:2 cll 333:22 clock 220:5 close 42:13 116:18,23 136:24 167:11 168:14 169:4,6 216:20,21 217:2,2 353:12 403:20 closer 131:8,9 club 180:8,20 cmo 133:5,10 410:10 coal 56:16,20 coats 7:11 46:13 48:11 87:9 93:19 100:3	coauthors 23:18 89:23 cocktail 180:3 180:20 coherency 308:2 cohort 8:13,18 10:4,11,22 11:10 137:7 157:17 222:5 342:18 369:3 coi 91:18,21 92:15 93:4,17 94:9 99:19 coin 311:6 312:16 313:24 314:5,23 315:12 317:21 318:13,23 coleman 4:16 colin 96:16 colleague 56:8 colleagues 55:1 college 91:9,11 94:5 186:23 collegium 92:6 columbia 2:23 413:2,5,22 column 120:16 columns 236:11 combination 224:15	combinations 224:13 combined 365:3 366:13 367:12,24 368:3,4,10 come 73:10 77:2 81:3 117:24 157:1,5 172:18 175:17 202:22 203:1 213:22 240:13 291:14 295:19 355:19 comes 143:11 183:8 185:14 187:22 266:18 coming 16:4 105:23 116:18 219:20 321:7 comment 30:22 31:8,10 35:12 39:10 80:10 85:8 110:19 111:2,5 265:7 284:22 337:3 342:24 343:16 commentary 92:9,9 comments 7:5 18:22 19:12,19 21:6 29:23 30:1,17,18,19 31:5 32:2 43:9
--	--	---	---

<p>43:19 79:20,23 85:11 89:7,9 89:11 108:10 108:13,22,23 174:17 298:2 commission 55:19 413:24 commissioned 114:13 commitments 203:12 committee 19:1 19:5,9 43:2,15 136:1 332:3 committees 16:22 44:9 135:22 common 76:3 82:8 communicated 205:10 communication 208:18 communicati... 181:24 213:9 215:2 community 113:4 396:19 companies 11:9 20:17 21:12 22:23 23:1,13 29:16 32:4,6 32:12 33:8 36:10 42:15</p>	<p>64:24 66:7,8 177:16,18,24 company 24:14 32:14,15 138:15 143:8 160:14 161:2 161:10 162:2,8 162:16 164:2,9 176:4 182:13 183:13,16 184:13 compared 313:11 348:18 399:21 400:4,6 400:15 comparing 401:6 comparison 244:11 352:17 353:3 comparisons 244:10,12 247:3 400:5 compensated 113:13 141:22 compensation 142:12 208:11 208:20 229:12 229:15 competing 300:10 complete 51:13 53:2,5</p>	<p>completely 94:3 272:5 complicated 140:5 conceivable 237:10 concentration 388:15 concentrations 207:24 211:13 295:6 298:11 301:11 304:3 306:9 316:4 concerns 105:7 conclude 52:16 68:2 207:20 228:19 277:1 282:6,14 299:16,18 304:7,8,10 322:6 371:20 concluded 46:19 74:12 240:10 256:12 265:13 296:13 296:14,19 297:6 310:17 314:7,23 324:13 327:9 328:7 330:23 331:16,17 332:3 334:14 336:15,23 410:24</p>	<p>concludes 332:3 concluding 25:15 334:4 conclusion 28:18 38:14,16 47:5,17 48:15 48:21 73:19,21 77:3 81:3 281:20 296:6 297:3 309:16 321:14,15,20 322:22 323:4,7 329:12,22 330:16 331:6 331:21,23 332:1 334:10 340:6,11 347:19 392:4 conclusions 16:4 21:18,20 75:9,21 80:20 207:9 303:19 354:5 355:20 378:11 379:1 conclusive 283:6 concur 327:13 concurrs 320:12 condition 67:8 68:13 184:21 conditions 162:5 264:19 264:21,22</p>
--	---	---	---

<p>265:13 333:13 399:20 conduct 27:5 45:3,5,9 148:5 214:12 274:23 396:14 397:21 conducted 20:19 21:14 38:12 55:3 79:11,15 157:4 157:8 189:7 232:8 233:5 235:23 313:4,5 conducting 149:22 371:22 confidence 270:19 271:16 304:7 306:24 307:9 308:11 308:21 349:11 349:15,22 362:22 365:20 370:7,11,18,20 371:9,14,22 373:15 confident 279:11 316:6 confidential 117:2 126:7,14 128:4 130:11 138:4,6 142:15 162:23 164:13 178:18 181:1,7 181:9,11,18</p>	<p>229:17,19,21 confirm 29:3 61:5 69:23 71:9 101:1 119:6 confirmed 256:8 conflict 7:14,17 31:17 88:14 91:21 94:9,23 95:23 98:22 347:15 conflicts 42:17 confounders 270:3 319:10 381:12,18 382:9 confounding 319:15,21 324:2 339:16 398:6 confusing 328:23 381:6 confusion 328:20 365:9 congress 203:23 congressional 59:9 60:18 connecticut 3:20 connection 39:21 164:23 204:12,13</p>	<p>consensus 113:3 conservative 264:16 265:8 266:4 302:22 303:4 consider 80:3 81:13 184:16 184:18,20,24 198:14 231:21 233:6 238:19 242:21 244:12 248:12 249:21 256:6 277:20 278:8 379:6 381:15 382:3 387:21 considerable 271:23 consideration 7:6 19:7 238:8 253:16 254:7 considered 19:1 75:2 95:18 231:10 231:11 237:13 242:4 244:7 246:4,6 248:16 249:23 260:17 261:7,10,14,23 262:4 268:18 269:12 277:23 283:4 291:1,5 381:11 382:19</p>	<p>385:3 394:17 considering 63:6 64:3 371:22 considers 95:20 consistency 308:2 401:11 consistent 271:22 272:6,9 280:3 320:14 322:7,14 341:14 400:7 401:8,10 consistently 79:10,14 401:22 constituents 74:23 76:6 82:11 constitute 296:17 constitutes 74:21 consulting 46:2 101:24 114:5 163:2 164:14 contact 49:21 49:24 52:24 61:19 64:6 contacted 34:5 34:8,13 54:13 55:5 contaminant 388:15</p>
--	--	--	--

<p>contaminants 9:15</p> <p>contaminated 8:16 10:9,15 10:20</p> <p>contamination 137:23 138:11 138:17 262:19 387:11</p> <p>content 21:8 88:8</p> <p>context 105:20 172:20 191:21 211:7 222:12 228:9 309:18 326:21,22</p> <p>continue 303:17 320:3</p> <p>continued 4:1 5:1 221:4,7</p> <p>continuing 142:24</p> <p>contract 11:20 130:3 170:16 170:19 171:15 173:8,11 266:21 267:24 268:2 402:16 402:20</p> <p>contracts 19:23 64:23 170:8,23 171:9,11,16,21 267:12,15 402:1 403:18</p>	<p>contradictory 330:19</p> <p>contradicts 330:17</p> <p>contrary 113:3</p> <p>contrast 27:17</p> <p>contribute 297:7</p> <p>contributed 187:2</p> <p>control 11:6 46:18 47:4,16 231:21 232:22 232:23 233:6,9 242:22 244:4 249:15 354:8 369:3 381:14 382:3 385:14</p> <p>controlled 242:2,18 243:8 244:9 246:21 247:2,19 248:16 249:2,2 250:22,23</p> <p>controller 157:17</p> <p>controlling 235:15,16</p> <p>controls 231:13 237:6 242:5 248:13 249:12</p> <p>controvention 49:2</p>	<p>convened 46:17</p> <p>convince 57:8</p> <p>convincing 323:7 334:22 335:4,4,10,14</p> <p>copies 119:12 119:14 289:4</p> <p>copy 85:7 108:2 291:13</p> <p>corner 366:23</p> <p>corporate 46:3</p> <p>corps 8:12 10:16</p> <p>correct 19:5 44:3 50:10,11 50:16 53:4 81:24 82:16 83:18 91:23 120:13 121:23 134:1,17 141:24 149:20 163:1,6 170:7 170:17 175:1 182:21 188:3 190:18,21 206:7 252:12 253:5 256:4 264:3 286:4 297:22 326:1 349:6 351:20 351:23 368:19 374:17 397:23 398:2</p>	<p>corrected 257:3</p> <p>correction 257:3</p> <p>corrections 412:9</p> <p>correctly 20:22 27:24 30:3,4 36:4,19,20 42:21,22 46:7 46:8,21,22 51:14 54:1,3 55:22,23 56:10 56:11,24 57:13 58:6,14 59:7 59:16 60:3,14 60:15 93:8,12 94:2 96:5,6 100:13 101:20 102:20,21 105:19 304:13 306:11 307:4 310:15 311:21 313:14 316:13 330:15 349:20</p> <p>correlated 383:24</p> <p>corroboration 57:6</p> <p>cost 267:22 403:9</p> <p>council 22:20 23:11,21 55:17 101:5 102:6,10 103:3,5 129:19</p>
---	--	--	--

170:20,24 councils 93:6 95:22 99:20 counsel 12:21 63:11 67:16 68:24 119:11 131:12,23 219:18 221:10 234:17 245:18 259:15 266:22 287:7,18 289:22 344:17 392:19 409:16 413:13,15 counsel's 117:12 count 372:20 counted 394:23 counter 105:6 counting 115:23 country 100:15 182:17 county 106:20 134:19 couple 16:16 33:13 43:20 81:9 95:15 114:13 125:13 135:16 163:22 175:6 180:9 233:24 257:11 294:6 298:1 305:14 356:20	course 24:15 72:23 174:8 195:11 201:21 202:1 212:14 297:17 405:5 court 1:1 12:17 13:12 15:9 87:23 113:2,7 178:22 244:24 271:3 278:17 288:8 293:11 321:8 330:2,9 343:6,11 357:9 369:5 413:4 courtesy 73:2 85:11 courts 58:10 covariates 231:10 381:11 381:12 covered 133:4 133:22 134:14 194:22 209:12 cpi 36:14,24 37:5,12 39:19 92:21 93:4,16 94:8,22 95:10 95:20 100:2 111:8 165:13 199:7 cracks 219:7,14 230:5 create 53:13 230:4	created 50:12 213:3,6 creation 213:2 credentialing 198:18 credit 125:19 235:24 credulity 46:4 criteria 214:1 286:18 critical 20:15 21:3,10 378:13 378:19 critically 187:12 191:17 criticisms 266:8 criticizing 22:3 critique 263:11 critiqued 45:13 critiques 22:5 265:23 critiquing 206:16 crr 1:23 crude 394:7 culminated 115:18 cumulative 227:22 228:4,7 346:12 369:23 370:5 current 59:15 291:3 404:17	408:8,9 currently 140:17 curriculum 8:7 202:21 curve 370:11 cut 41:6 48:3 96:22 176:10 247:5 cv 1:4 199:4 201:15 d d 12:1 358:21 361:3,10 362:18 364:13 dabt 6:10,13,16 6:19,22 dangers 46:5 danish 11:9 367:1 data 25:13 57:8 57:11 74:18 214:11,13 228:2 235:5 271:21 272:6 273:12 308:2 316:2 317:19 317:19,20 327:24 328:7 350:4 374:1 387:10 390:22 391:1,11,13 398:6,11
--	--	---	--

date 12:10 79:11,16 120:5 120:10 121:8 402:16,22 405:10 413:10 dated 88:17 260:23 david 4:17 93:16 100:1 day 14:22 122:19,19 147:6 412:15 days 26:12 122:12,21 dc 2:17 3:21 5:12 12:15 138:22 deadlines 123:4 deal 135:5,11 200:23 201:4 229:22 383:11 dealing 20:8,9 69:8,17 171:1 184:6 199:5 207:12 263:7 278:8 345:20 dealt 111:19 195:3 decades 32:4 51:12 155:9 197:4 december 7:15 88:17	decide 213:22 decided 57:5 250:8 decision 112:24 264:7 265:16 266:3 362:2 decisions 124:20 declaration 31:20 412:1 declare 412:4 declined 110:18 111:2 deemed 30:13 382:18 deep 277:17 deeper 192:20 deeply 113:13 defend 7:12 33:11 66:8 93:19 100:4 161:3 defendant 139:20 161:2 defendants 32:9 defended 65:4 defending 66:19 67:1,4 defends 46:2 defense 19:11 44:13 67:10 72:4,13 95:2 161:13,17	164:7 206:15 define 15:24 16:2 32:13,17 39:5 286:10 298:15,16 299:3 359:3 defined 157:23 299:14,15 302:8 311:5 314:9,12 defines 285:7 defining 283:13 definitely 32:1 222:3 definition 86:15 299:7 300:3 326:20 339:14 371:5 degree 113:12 186:19 195:7 228:20 264:17 399:8 delegated 213:15 377:23 deliberately 379:2 demonstrate 37:8 150:4 328:18 demonstrated 54:17 371:8 demonstrating 48:24	denali 155:11 156:9 157:5 223:21 denise 1:23 2:20 413:3,21 dep 163:16 department 2:15 5:4 122:13 125:23 126:23 127:9 146:18 152:24 153:11,19 155:2 201:16 203:15 403:8 405:9 dependent 351:6 dependents 10:14 depending 41:2 242:13 depends 115:8 123:3 deponent 12:19 deposed 127:4 138:3,10 160:5 163:21 deposition 1:13 2:11 6:6 12:13 17:10 18:2 78:5 127:10 159:19 160:22 164:3 179:3 180:24 198:4
---	--	---	---

<p>258:15,15 406:5 410:12 410:24 412:6 412:10 depositions 159:22 160:19 depth 237:16 292:14 derivation 76:15,22 dermal 277:17 277:21 278:11 describe 26:6 171:11 285:6 described 264:1 describes 36:14 37:1,5 describing 37:7 265:20 description 204:19 381:21 design 78:18 395:19 397:5 398:9,10 despite 50:7 detail 147:9 163:4 266:14 322:24 343:15 343:18 detailed 151:17 260:15 261:1 detailing 150:13,22</p>	<p>details 39:24 61:1 74:9 78:11 113:10 176:21 224:22 262:7 268:2 307:21 deter 96:1 determination 158:22 304:19 311:10 392:1 408:12 determine 67:7 67:22 97:7 142:11 147:13 148:8 156:15 157:3,12 169:20 210:17 370:10 377:13 determined 140:4 143:15 298:6 300:21 301:7,20 337:10 393:10 determines 154:5 275:22 determining 158:10 develop 112:9 112:21 developed 30:1 92:4 229:6 240:8 256:8 diagnosed 185:3 188:7</p>	<p>190:19 399:19 diagnosis 185:1 dichotomized 269:5 dichotomous 271:17 272:18 272:24 diesel 55:18 difference 232:16 279:15 301:18 352:9 384:5,19 differences 313:8 354:19 different 20:4 40:5 47:23 59:2 66:3 98:3 98:4,5,5 108:16 122:1 130:13,16 147:4 154:14 154:16 170:23 173:10,21 174:2 189:11 189:12 195:8 196:11 212:10 217:16,17,21 217:21 218:11 218:12,20 227:8 230:2,3 230:13 231:7 232:14 235:7 235:21 236:6,7 236:7,9,16</p>	<p>237:2,3 241:7 244:13,13,18 246:1,11 249:5 249:14,16 251:24 252:1 252:10,10,21 252:24 253:3,3 254:21,22,23 255:22 256:16 259:18 260:4 264:18,19 283:12 288:22 302:2 303:10 323:12,14 326:24 337:24 355:19,23 360:10,14 364:20 365:8 379:22 388:10 393:3,23 394:9 396:9 differentiate 234:24 differentiated 240:3 differently 26:18 124:1 140:23 246:18 254:12 346:6 364:11 395:20 396:12 397:4 397:21 difficult 176:20</p>
--	---	---	--

diminished 316:11 318:7	328:11,16 329:2,6 331:14	discount 53:14	218:7,10,24
diminishes 318:18	332:1 335:11 338:17 339:1,8	discovered 102:12	221:17,18 222:4,22
direct 23:21 240:21 241:11 241:15 386:15	340:13 341:4 341:16 342:11 347:24 348:6,7	discuss 26:14 37:8 166:19,19 221:17 263:10 342:9 376:15 376:17 379:3 389:12	223:13 224:23 225:22 228:13 229:6 230:9,18 231:13 237:6 238:12 240:4 240:12 242:5 244:19 246:5,6 246:20 247:7 247:12 248:13 249:12 255:12 255:23 295:12 317:11 339:22 340:19,24 341:12 354:7,9 380:8 385:10 385:18
direction 156:15 157:2 158:6,12 214:20 223:23 224:5 250:2 389:14	351:21 389:18 391:11 392:1,5 396:23	discussed 134:3 165:16 209:19 209:21 213:14 242:13 284:3 297:15 379:18 380:20	231:13 237:6 238:12 240:4 240:12 242:5 244:19 246:5,6 246:20 247:7 247:12 248:13 249:12 255:12 255:23 295:12 317:11 339:22 340:19,24 341:12 354:7,9 380:8 385:10 385:18
directions 158:7	disagreed 264:13	discussing 295:10 407:15	diseases 9:17 25:17 26:8 39:22 51:22 122:3,4 164:23 185:23 186:10 191:8,11 195:9 195:21 196:9 196:14 204:14 207:11,14 208:10 217:21 218:12,20 221:12,21,23 222:16,20 223:14,15 227:11,13,18
directly 24:13 50:4 53:11 55:6,6 129:5 134:4,13	disagreeing 54:10	discussion 240:11	
directors 44:16	disagreement 150:5	discussions 211:11	
disagree 16:9 46:23 47:1 54:4 79:21 89:10 96:7 100:21 102:23 102:24 104:16 104:21,23 108:4,8 198:12 215:4 286:24 287:3 293:1 302:11 303:6,8 303:12 304:14 304:23 326:7 326:10,18	disagrees 104:18	disease 6:15 17:17 46:18 47:4,16 66:24 67:12 69:8 165:7,9,17,20 166:7,12,20,24 170:6 184:17 184:22 185:11 185:14,24 189:15 191:24 192:2,10 193:8 194:12,17,22 195:11 197:15	
	discerning 95:18		
	disclose 108:19 108:21 109:1 128:8		
	disclosed 108:22,23 128:12 138:6		
	disclosing 105:12 109:17		
	disclosure 7:14 7:17 88:14 91:19 93:17 98:22 108:9 172:1		

<p>228:13 229:8 230:3 233:9 246:2 247:20 248:16,24 249:3 250:21 252:1 254:23 353:5 354:20 378:1 379:24 398:7 disinformation 50:22 disorders 332:20 333:10 340:18 341:11 dispute 29:6 39:4 47:9 60:20 61:2,4 69:21,23 107:8 disputes 264:9 distinct 355:5 distinguish 304:20 distribute 136:13 district 1:1,2 2:23 12:17,18 413:2,5,22 divided 218:9 division 1:3 12:19 dmiceli 4:21 dobner 1:23 2:21 413:3,21</p>	<p>dockery 56:9 56:13 57:6 doctor 114:21 184:23 doctors 114:24 document 1:9 17:4 18:18 19:18 38:21 45:18 87:24 88:3,6,8 89:17 92:20 98:9,12 98:21 99:14 101:12,17 103:10 107:3 107:23 119:20 119:23 135:10 178:23 179:10 180:17 181:13 199:23 210:22 211:18 228:18 232:4 233:2,13 233:16,22 234:7 239:6 243:1 245:2,5 246:24 247:16 248:1 252:6 255:17 259:4,5 271:5 275:14 275:24 276:21 278:19 279:5 281:15,18 283:8 287:22 287:23 288:5 288:10,13,20</p>	<p>289:18 293:13 296:8 304:16 321:3,10,23 322:5 323:13 323:15 325:2 326:11 327:11 330:4,14,17 331:2,19 333:3 334:13 337:1,9 337:18 340:2 342:6 343:8,17 344:9,11,13 346:10,21 357:2,11 358:14 359:9 359:10,17 365:10,13 366:3 368:21 369:1,6,19 370:2 373:4,5 373:12,19 374:10 375:7 382:10 383:18 388:12 397:9 402:6 documented 255:11 documents 7:4 12:3 147:12,16 259:14 260:7 261:14,20 262:2 264:2,10 264:13 321:6 402:5,11</p>	<p>doing 25:6 28:12 48:5 50:20 63:5,5,9 64:7 128:22 145:12 146:11 146:15,19 147:9,20 149:5 150:14 151:14 151:17 154:19 172:6 186:5 193:2 197:4 203:1 217:18 217:20 231:6 258:9 278:7 286:8 313:15 334:8 396:16 doj 87:3 136:3 136:10 150:19 204:15 205:16 215:7 266:21 267:13,24 403:18 404:2 408:23 dollars 69:16 125:11 128:1 128:13 129:11 130:7 172:24 173:4,7,18 174:2 domestic 56:16 dose 27:16 52:16,18 227:22 228:4 370:6,11,23</p>
---	--	---	---

<p>371:6,6,7,21 376:18 388:23 dosed 52:8 doses 40:22 double 119:22 254:3 doubt 46:5 59:1 94:12 100:10 158:15 250:9 dozens 59:13 376:22 378:22 dr 12:20 13:24 17:12,14,16,18 17:20,22 18:17 19:21 20:14 21:9 22:2 27:15,19 29:15 29:18,22 30:1 35:18,20 36:9 36:16 37:3 41:6 42:13 48:2 61:9,16 61:19 69:2 93:23 94:9 105:4,9 107:5 109:14 118:13 132:8,15,17 136:5 203:14 211:9,10 221:12 234:19 262:20,24 263:4,11 270:15 282:20</p>	<p>283:16 287:20 293:16 319:3 342:14 346:16 346:24 348:8 350:1 351:21 352:16 354:21 355:6,11 373:9 386:8 387:5,20 388:9 389:8,17 395:18 410:15 draft 7:8 73:18 drafted 215:21 217:6 drafts 72:24 85:17 172:8,9 174:13 dramatic 57:5 drank 388:21 389:6,7 390:13 390:15 398:4 drastically 116:1 draw 73:20 309:16 drinking 8:11 8:17 9:15 10:9 10:16,21 211:20 228:22 264:23 388:15 due 48:2 217:3 duly 13:17 221:5 413:6 duration 253:16 348:22</p>	<p>349:13 372:18 durham 90:8 97:3 dying 58:1</p> <hr/> <p>e</p> <hr/> <p>e 1:14 2:12 6:2 6:10,13,16,19 6:22 12:1,1,20 13:15 85:22 94:24 107:5 221:3 412:19 earlier 43:8 135:16 213:14 256:19 early 342:16 easily 29:3 eastern 1:2,17 2:9 12:18 ecological 343:3 ed 306:4 edf 7:5 19:19 edge 216:21 edges 215:11 215:16 editors 8:21 education 124:10 186:9 188:6 191:8 192:17 194:1 194:11,16 195:4</p>	<p>edward 113:1 effect 52:15,17 60:7,9,10,12 61:9 79:24 271:19,23 272:7,9,12,16 274:7,7,10 306:6 effective 402:16 effects 9:4,7 27:17 28:10 29:20 56:16 59:23 135:21 166:16 199:8 316:8 effort 233:19 eight 307:19 404:6 either 16:22 32:15 33:3 37:6 38:8,22 50:21 54:14 66:23 73:21 76:12 89:19 183:22 198:10 218:21 248:10 256:10 263:15 272:15 273:1 273:18,23 274:7 283:14 295:3 298:7,17 298:24 299:8 300:5,13,15,18</p>
---	--	--	---

<p>300:18 301:8 301:19 302:16 302:21 311:14 312:5 314:1,6 electrical 359:15 361:5 361:16,16,17 362:9 electronic 359:16 361:5 362:9 electronics 357:17 361:16 361:17 elements 230:13 elevated 353:6 357:21 elizabeth 5:7 13:7 elizabeth.k.pl... 5:15 ellen 89:18 ellis 69:15 ellison 5:8 else's 152:9 embargo 56:15 emboli 322:20 emeritus 96:17 emitting 76:7 82:12 employed 94:12 100:10 115:2 240:9</p>	<p>354:2,11 employee 114:24 132:11 132:12 413:13 413:15 employees 8:16 10:14 44:18 115:2 165:8 176:15 346:2 employer 94:11 100:7 employment 365:18 encompasses 198:1 endorsement 94:7 ends 370:6 enforce 58:10 engaging 132:21 engineering 114:5 175:9 english 283:12 284:7 285:6,12 285:22 286:1 enter 74:23 entering 407:15 entire 412:5 entirely 270:2 entirety 125:12 125:13 268:17</p>	<p>entities 16:22 35:22 87:15 136:13 170:9 171:20 173:24 275:7 290:16 entitled 70:14 93:18 100:3 201:21 208:11 216:24 293:19 342:16 entity 87:10 129:23,23 263:15 environment 99:11 environmental 5:5 19:11,22 20:3 35:21 44:13 55:19 90:7 129:20 177:16,18 294:1,2 epa 7:8 9:1,5,8 9:19 19:12 28:8,12,21 29:18 57:10,22 58:10,16 59:10 61:10 135:24 136:1 262:19 262:24 263:7 264:20 265:4 265:12 266:4 275:1,11,16,20 275:21 276:4</p>	<p>276:11 277:7,9 280:3,22 282:1 282:1,6,8,11,17 282:20 283:2,3 283:9,13,17,18 283:22,24 284:1,8 285:11 287:21 290:21 291:3 295:19 295:22 296:13 296:14,18 310:8 320:13 323:3,6 325:22 326:7 329:16 330:18 332:16 334:19 335:7 335:11 340:15 340:21 341:4,7 341:18 342:9,9 342:12 390:23 391:9,13,20,23 392:4 epa's 19:2 263:17 265:24 275:19 279:9 296:5 329:22 335:15 341:5 epi 307:9 308:7 308:16,19 309:11,22,23 311:1 epidemiologic 79:8,11,15 329:17 330:13</p>
--	---	---	---

<p>334:21 340:16 341:9 epidemiologi... 396:19 epidemiologist 92:8 155:12 195:4 epidemiologi... 226:19 epidemiology 7:15,18 59:13 74:11,13 75:13 76:12,20 81:21 88:15 90:21 91:9,11,18 92:2,18 94:6 98:23 106:8 137:7 145:17 149:1 156:22 157:18 158:2 158:10,21 184:19 185:15 186:3,12,20,24 187:7,10 189:19 190:8 190:12 191:9 192:3,13 193:9 194:2 197:5,7 201:17 211:7 218:10,13,22 222:15 223:6 224:4 269:13 276:22 290:24 305:18 306:19</p>	<p>307:6 316:9 322:14 332:4 340:4 348:8 349:23 351:16 377:24 epitome 46:12 48:11 equal 295:2 298:7,17 301:8 349:11,12 383:3 equipment 359:16 361:5 362:9 equipoise 295:6 295:12 298:11 298:16 299:3 299:15 300:4 300:21 301:3 301:12,21 302:9,23 305:6 307:12 308:13 308:23 309:14 309:21 310:23 310:24 311:5 312:10 313:18 314:20 317:14 318:3 319:18 330:23 331:4 336:15 339:21 340:5,9 equity 176:7,19 176:22 177:6 177:10,14</p>	<p>182:17 equivalent 369:24 370:1 equivocal 40:2 errata 411:1 412:11 error 248:18,21 248:22 288:24 esophageal 353:7 esq 3:4,5,6,7,18 3:19 4:5,6,7,17 5:6,7,8,9,10 essentially 16:17 18:24 26:3 28:11 80:19 83:3 96:10 211:12 211:16 212:18 223:22 264:20 278:1 285:1 286:3 300:2 316:14,21 350:13 377:8 established 332:17 333:7 estimate 362:5 362:16 366:11 371:19 estimated 211:21 388:14 estimates 57:24 306:7 347:3,12 359:2 360:10</p>	<p>362:13,15 372:17 375:15 398:2,3 estimating 387:15 et 8:13,19,22 9:12 10:5,12 10:23 11:3,7 11:11,15,18 ethanes 325:8 ethylenes 325:9 evaluate 25:22 28:9 30:8 56:15 65:14 67:21 135:20 204:18 223:7 265:22 277:8 277:12 evaluated 25:13 68:11 157:15 187:13 192:10 199:6 222:11 277:24 379:15 391:23 evaluates 25:9 evaluating 191:18,20 204:6 269:13 evaluation 9:1 10:7,18 38:23 65:15 73:13 136:1 204:10 266:6 327:12 379:7</p>
--	---	---	---

<p>evaluations 20:18 21:14,16 22:6 42:19 53:9 320:12 379:17 evan 33:19,22 33:24 34:5,7 34:12 64:16 65:3 69:15 70:12,23 71:5 71:5,9 72:24 84:13 85:7,16 85:21 event 178:9 everybody 95:7 212:20 evidence 9:11 9:14 25:8 46:20 47:6,17 48:16 55:3 73:20 75:9 76:13,18 77:4 77:15 80:4 81:14 94:13 100:11 186:6 204:7 206:1 207:22,22 209:23 257:6 269:17 274:4,5 274:13 275:17 276:22 277:18 280:12,23 282:12,14,23 283:6,7,12,14</p>	<p>284:2,5,6,14,24 285:7,8,23 286:1,16,22 290:23 291:2 291:16,17,23 292:11,17,19 293:2,20 294:18 295:2,4 295:11 298:9 298:18 299:16 301:9,18 304:1 304:8 306:24 307:8 310:18 311:12 312:3 316:10,15,18 317:2,4,13 318:19 319:14 319:20 320:17 322:17,19 323:1,7 324:15 324:16 325:9 325:17,23 326:13,13,15 327:9 328:8,19 328:21 329:4 329:12,18,23 330:24 331:4 331:17 332:6 332:11 333:17 334:1,4,6,11,15 334:20 335:19 336:5,16,24 337:11 338:13 339:4,5,6,13,21</p>	<p>340:4,6,9 341:21 385:19 exacerbate 296:24 exact 70:10,18 116:8 190:11 196:8,13 297:21 390:3 exactly 24:8 48:17 127:17 140:3 204:17 205:12 272:21 274:11 390:13 examination 6:2 13:16,20 221:4,7 examine 376:2 examined 13:17 221:5 376:1 example 22:2 27:14 29:18 35:24 92:17 95:20 96:2 134:6 152:13 153:5 157:3,5 166:14 167:22 169:20 192:4 202:24 213:17 218:3 225:24 227:10 249:11 262:11 270:3 270:17 271:10 271:13 278:12</p>	<p>355:4 402:14 examples 25:21 38:11 63:24 91:18 92:14,19 356:1,1 377:1 exceed 313:4 403:13 404:20 except 150:18 178:3 412:9 excerpt 9:3,6,9 9:18,22 exclude 86:6 excluded 358:16 377:14 exclusion 377:15 excuse 79:12 123:6 165:11 221:22 253:22 259:17 357:1 358:13 404:6 exhaustively 46:4 exhibit 6:9,12 6:15,18,21,21 7:1,3,5,11,13 7:16,20 8:1,4,7 8:8,15,20 9:1,4 9:7,10,14,19 10:1,7,13,18 11:1,4,8,13,16 11:19 12:4,4,5 12:5,5,6,6 17:3 17:5,12 18:1,5</p>
---	--	---	--

29:14 45:17,19 88:1,4 98:8,10 98:17 101:11 101:11,13 103:11 111:10 111:12 112:2 119:8 125:6,6 144:18 178:24 179:2 199:24 233:14 244:24 245:3 258:19 258:21,22 271:3,6 278:16 278:17,20,22 288:8,11 289:19 293:11 293:14 321:8 321:11 330:2,5 343:6,9,10,14 344:10,12,14 344:19 352:22 357:9,12 359:11,13 365:11 369:7 373:6 393:11 402:4,7 exhibits 6:6 17:11 115:19 152:8 207:5 213:5 409:23 exist 129:14 149:18 210:14 401:14	existed 48:22 207:17 209:18 210:18 exists 186:11 221:18 299:19 304:11 expect 367:2 401:10 expects 58:3 expense 120:17 123:6 experience 188:6 197:8 experimental 148:18 284:15 324:17 332:5 expert 1:13 2:11 6:9,12,15 6:18 32:8 66:18 86:24 93:23 95:2 100:5 112:9 122:1 128:12 135:17 159:3,6 159:14 160:6 163:2 164:6,14 164:20 184:17 184:18,21,24 187:5,6 188:17 188:18,22 189:1,9,24 190:10,14 193:18 195:24 196:1,4,10,13	196:17 197:22 198:1,4,14 203:15 205:10 205:22 206:16 206:20 221:13 222:15,20 223:7 262:12 268:24 378:14 379:15 expertise 72:2 186:2,9 191:7 196:9,19 197:2 197:8,11,14 223:5,9 224:4 224:18,19 experts 46:17 206:10,17 207:1 228:7 261:1 379:10 expires 413:24 explain 106:7 252:7 384:10 384:24 explained 228:8 explanation 257:11,15 258:1 295:3 298:8,17 301:8 356:12 401:13 explanations 252:24 253:2 304:6 305:3 326:16	expose 94:23 169:23 exposed 8:10 8:16 10:8,15 10:20 39:13 51:5,16 75:4 92:23 94:8 100:4 165:18 211:19 212:19 228:5 313:3 383:6,7 384:12 384:13 386:17 400:14 exposure 9:10 10:2 11:14,17 66:9 72:21 76:1 80:5 81:15 82:6 123:6 135:21 207:16 210:14 211:22 212:22 228:8 240:21 241:1,4,9,12,15 253:17 264:16 265:8,21 271:14,20 275:13 276:14 276:18 277:8 277:12,18 278:10,14 282:5,10 283:5 288:1 293:20 294:15,17 295:5,20,23
---	--	--	--

296:15,19	278:13 313:5,5	100:24 106:13	55:7,8 58:16
298:10 301:10	313:7 316:5	111:5 120:3	62:21,22 65:6
304:2 306:8	320:15 326:6	154:11,18	65:10,24 71:8
315:24 316:5,8	346:12 367:2	156:11 160:21	77:21 90:16
317:10 323:6	382:4,7,17	166:1 191:8	92:11 100:23
327:21 328:3	383:22,24	192:1 247:24	122:9 127:4
328:13 329:18	386:16 387:21	249:1 250:4,6	130:12 146:7
332:7,18 333:8	388:10 390:16	309:3,14	148:17,19,19
333:21 335:8	exposé 93:4,17	356:16 368:8	159:5,15 160:4
335:16,22	93:22 99:19	378:8	160:13 164:23
340:17 341:10	expressed	factor 75:2	169:4 172:5
342:17 360:14	105:16 109:23	76:3 82:8	185:13 191:6
362:11,11	364:11	249:21 250:9	206:3 207:17
364:22 367:1	extensive 29:19	269:18	216:15,18
369:23 370:5	36:1	factors 11:4	227:15 231:7
371:13,18,20	extent 208:17	140:6,11,13	250:24 263:22
376:1,2,7	213:8 228:6	143:21 270:22	279:24 295:18
382:19 383:13	257:9 258:3	381:22 383:20	324:6 338:18
383:23 384:5	268:21 338:15	393:23 394:1,1	351:13 363:5
384:18 386:24	377:5,8 407:15	facts 61:13	367:10 395:12
387:6,15,16,17	extrapolation	63:7 94:22	403:6
389:3 395:1	27:16	98:1	fall 76:8 82:13
396:4	exxonmobil	factual 363:19	127:5 148:14
exposures	36:2	363:22	falls 285:8
40:15 41:4	f	factually 95:14	323:1
76:4 82:9	face 6:11,14,17	faculty 201:16	false 42:9 53:13
199:9 209:24	6:19,22 254:15	202:3	53:20
211:6,15	fact 16:7 28:15	fair 14:18,19	familiar 90:20
212:23 242:4	38:19 39:3	15:13,14 19:13	96:12 286:17
242:20,23	50:20 53:14	19:16 20:7,20	familiarity
244:3 246:23	77:19 80:22	28:20 30:24	395:13
255:12 276:24	84:9 85:15	31:10 35:6	family 381:16
277:15,17,21	94:22 100:14	38:15 44:6	far 51:5,16
277:24 278:2,3		45:4 50:12	133:22 181:21

257:12 266:1 354:13 fault 162:10 365:9 favor 88:22 featured 36:12 february 6:11 6:14,17,20,23 7:19 8:23 9:21 99:12 260:24 262:3 federal 264:2 fee 24:16 feedback 172:12 feel 216:22 217:10 fellow 186:21 186:23 194:6 223:4 felt 25:6 364:9 female 359:16 females 361:8 364:8 fibers 76:2 82:7 field 189:1,10 189:24 190:15 224:19 fields 186:11 194:4 196:20 fight 8:1 figure 49:21 50:1,8 61:20 140:18 141:1	142:22 figured 181:5 file 161:14 162:16 filed 12:16 161:10,19 162:2 164:10 164:10 fill 108:3 214:2 filtering 218:4 final 85:13 172:10 215:23 finally 319:9 339:19 finance 177:9 financial 29:16 30:2,16 31:9 31:11,17 32:1 35:11 36:12 42:14,16 80:8 80:18 financially 94:10 100:6 142:23 413:16 find 15:22 43:6 43:12,14 61:9 61:11 74:12 75:13 83:12 87:16 134:9 165:8 166:6,23 200:13,16 201:10 213:18 234:23 265:18 310:23 312:9	313:16,18 314:19 356:2 386:22 finding 140:16 204:12 274:4 findings 40:2 59:1 60:1,23 274:16 304:6 305:3 320:14 322:7 347:20 354:4 355:18 358:12,13 379:3 396:21 400:8 finds 356:3 fine 70:12 123:15,15 135:8 218:1 240:1 241:21 402:23 finish 15:11,12 27:2 41:9,11 48:4 finished 157:22 163:17 222:9 292:5 387:14 fired 84:19 firm 19:22 20:4 33:23 34:1,2,9 66:3 69:14 71:6 114:5 175:9 176:7 177:10,14 199:6	firms 33:11,14 46:2 86:21,23 182:17 201:4 first 19:20 20:1 22:2 43:18 44:1 47:11 51:2 79:1 93:14 96:5 98:20 100:18 101:21 105:3 106:10 120:4 122:4 129:9 152:11,12 210:4 216:13 217:14 231:22 237:13 242:13 249:24 250:12 256:9 266:7 274:19 276:4 280:8,17 283:21 289:2 310:12 322:1 330:11 334:9 345:8 348:17 349:6 352:5,8 365:17,21 370:19 380:20 387:11 396:13 402:19 404:24 413:6 fit 158:22 291:1 300:3 fitters 361:17
--	--	--	---

five 51:22 121:24 122:3 125:24 152:7 185:23 186:10 195:21 196:9 196:10,14 204:8,8 207:4 207:11 208:1,9 221:21,22 222:20 223:14 223:15 228:13 230:9 268:19 279:3 310:9 345:3 354:20 355:6,10,12 356:2 357:18 377:6 379:23 380:9 386:7 394:20 395:13 395:23 399:19 400:16 401:15 406:7 flat 371:10 flawed 78:17 78:18 356:13 flint 126:10,12 126:22 137:24 138:19,20 flip 311:6 312:16 313:24 314:5,23 315:12 317:21 318:23	flipping 318:13 focus 37:22 133:20 308:1 focused 292:9 foia 106:19 135:9 follow 189:16 213:1 250:11 251:17 252:4 257:2 followed 105:11 109:16 following 74:17 75:22 78:23 124:18 276:11 282:1 follows 13:18 221:6 foment 94:13 100:11 food 102:2 foods 101:7 fore 60:23 foregoing 413:8 foreign 56:17 forget 87:21 forgetting 33:17 forgot 69:24 110:9,11 209:4 311:17 375:22 forgotten 62:9	form 16:14 23:6 24:2 26:22 32:20 35:16 37:16 40:7,19 50:14 52:11 57:17 58:18 60:5 62:5 65:12 66:13 70:6 71:18 73:7 82:2 85:20 87:18 93:10 107:10 108:3 109:4 112:17 133:7 140:20 142:7 143:3 144:1 151:2,23 153:23 155:5 161:22 170:12 174:5 185:20 186:14 187:20 189:3 190:3 191:13 192:7 193:12 194:20 196:3 197:18 198:8 199:13 207:19 208:14 210:20 218:16 219:9 223:17 228:16 252:17 254:19 256:14 257:18 259:24 264:5 269:9 276:8 286:7	288:3 290:19 291:7 294:8 295:14,21 297:5,19 301:1 302:5 305:9 307:14 309:1 310:3 312:14 313:22 314:21 316:20 317:17 318:11,21 319:6,23 320:24 323:11 324:4,12,24 325:12 327:4 327:17 329:9 333:1 336:9 337:16 338:9 338:20 339:24 340:20 342:2 346:19 347:17 348:5 350:10 351:3 353:24 354:23 355:14 356:14 360:21 363:21 364:5 366:1,17 367:18 371:2 372:9 375:4 376:13 377:11 378:3,17 381:4 384:8,22 385:8 386:12 387:2 390:8 391:5,18 395:24 397:7
--	--	---	---

<p>398:17 399:12 399:24 400:20 401:19 404:7 404:14 405:19 407:4 408:16 409:2 formaldehyde 222:6 formalized 226:15 formed 117:15 former 10:13 56:8 61:10 forms 204:4 formula 101:7 102:2 140:5,11 141:7,18,21 142:2,4,10 143:1,6,14 forth 28:6,13 42:2 54:24 78:1,9 104:4 104:11 209:20 261:11 316:24 413:10 forthcoming 136:6 forum 98:3,4 found 44:1 59:14 77:24 165:14,18 245:24 257:1 257:15 258:4 261:12 264:21</p>	<p>265:8 307:6,8 308:7 337:7 340:17 341:9 346:16 367:7 394:1,3 foundation 34:11 49:14 110:22 111:22 186:3 188:5 190:7 267:3,8 357:23 358:5 375:4 377:11 379:13 386:12 396:1 405:13 foundational 187:18,22 212:1 founded 62:24 four 33:15 59:24 60:22 310:10 375:2 framework 191:21 276:16 286:18 287:4,5 295:16 310:7,8 310:9,10 francisco 99:10 fraser 46:14 50:1 frederick 51:10 53:1 frequency 372:18</p>	<p>frequent 55:17 frequently 23:4 front 136:5 144:17 214:23 230:9 337:19 376:4 402:11 full 51:3 55:12 79:3 214:12 344:22 349:6 fully 223:11 function 306:1 fund 19:12 44:13 169:12 176:19 177:6 fundamentals 191:17 192:12 funded 20:16 21:12,16 22:7 22:17 23:23 27:14,20 28:24 29:7 32:7 33:3 33:11,13 36:15 37:2,23 59:3 59:24 60:21 86:23 87:3 137:6 167:8,10 167:15 168:9 170:3 172:2 297:11,13 funders 21:4 168:3 funding 21:5,7 21:17 24:4 29:15,19 30:7</p>	<p>30:8,20 31:12 31:19,21 33:7 34:1 36:1 37:14 44:21 56:17 105:12 105:23 106:11 108:19,21 109:1,8,9,17 135:19 167:20 168:11 169:7,9 172:1,6 403:14 403:16 404:21 funds 80:23 167:19 169:1 170:16 further 29:22 56:6 57:2,21 80:20 221:6 257:14 409:18 410:7 413:7,12 future 199:7</p> <hr/> <p style="text-align: center;">g</p> <hr/> <p>g 12:1 gas 8:1 103:19 104:13,13 105:5,7,15 106:7 109:22 general 88:7 91:5 181:5,5 204:18 249:22 305:24 324:9 364:21 380:7 400:3,6</p>
--	---	---	--

generally 72:8 72:16 89:10 104:9 173:2,3 211:8 218:5 236:10,13 263:1 281:3 306:23 328:15 328:15 343:2 349:23 350:4 351:15 394:5 generate 56:17 georgetown 4:9 geosyntec 141:12,14 142:11 175:4,5 175:8,12,15,18 175:21,23 176:6 177:2 178:4 181:22 181:23 229:13 germany 11:7 getting 136:9 161:19 195:7 211:3 226:8 276:1 278:23 327:22 328:5 328:14 339:24 397:12 407:11 giant's 112:12 give 124:11 128:19 131:3 146:18 157:12 158:3,11,24 160:9 163:4	230:17 235:24 248:5 250:1,9 270:5,21 285:20 296:12 390:6 402:24 403:2 406:1 408:2 given 42:13 116:3,12 117:6 130:14 158:5 158:23 159:23 204:16 269:24 409:21 gives 193:16 giving 59:11 93:23 100:5 108:11 go 8:2 18:13 39:19 67:16 93:2 102:13 107:21 140:7 140:15 157:9 158:1 171:23 205:17 218:18 223:14,24 224:1,9,16,17 234:1,8,11 245:7,11 248:4 257:13 275:10 298:24 299:8 300:5,18 302:16,21 314:6 319:10 330:16 338:20	355:4 359:18 360:23 366:6,8 370:20 371:13 371:15 373:20 374:11 375:16 382:11 392:11 395:2 397:10 398:1 401:2 409:9 goal 25:18,21 104:4 125:17 129:4 goals 123:11,21 124:7,18,22 goes 19:18 129:4 172:10 213:8 215:1 277:18 371:18 going 14:7,16 14:22,22 17:2 25:22 41:11,18 48:4 50:1 52:4 67:18,18 68:7 68:20,23 70:9 84:24 86:6 98:7 100:15 101:10 103:8 117:11,21 121:21 129:8 131:13,19,22 136:23 141:2 168:12 195:5 212:22 219:19 220:7 221:9	222:10 226:2 230:16,17,19 233:24 234:2 234:13,16 245:8,14,17 254:15 271:1 272:23 275:10 278:4,4,16 281:1,1 287:8 287:14,17 289:16,21 299:11 320:7 327:1 344:7,16 365:7 366:5,7 369:4 379:23 380:6 392:14 392:17,18 396:15 397:14 397:17 403:9 408:14 409:12 409:15 410:22 gold 27:8 golkow 12:10 good 50:23 220:3 255:4 297:2 410:16 goodman 1:14 2:12 6:2,6,10 6:13,16,19,22 7:2,20 8:4 9:12 11:21 12:20 13:15,24 17:24 18:17 19:21 20:14 21:9
---	---	--	--

22:2 27:15 29:15,18,22 35:18,20 36:16 37:3 39:9,11 41:6 48:2 53:18 59:10,21 61:11 69:2 93:23 100:5 101:17,23 102:11 105:4,9 107:5 109:14 118:13 119:19 132:8 144:24 203:14 221:3 221:12 234:19 282:20 283:16 287:20 293:16 319:3 342:14 373:9 410:15 412:19 goodman's 17:12,14,16,18 17:20,22 27:19 27:20 30:1 36:9 42:13 94:9 gordon 5:20 12:9 gore 8:6 179:7 gotten 30:8 government 39:12,21 116:7 116:13 122:14 125:24 130:3	135:15 402:10 governmental 274:16 275:7 386:4 390:19 grace 32:15 171:16 grade 391:15 391:20 gradient 7:1 19:22 20:2 34:8,20,23 45:3,6 46:1,16 47:2,15,20 48:7,14,20,23 51:4,15 56:5 58:23 59:1 71:2 94:11 100:7,9 101:23 107:5 110:18 111:2 114:3,4 114:6,23 115:3 115:17 116:6 118:9,17 119:1 121:8,19 122:13,22 123:2,5,18 124:2,6,14 127:8 128:24 129:1 130:13 132:11,11 135:24 136:3 137:10 139:23 141:10,11 152:14 153:11	155:8,13 165:1 165:6,8,16 173:9 175:3,5 175:11 181:19 181:23 182:3,4 182:7 183:3,8 188:20 215:19 222:14,18 223:20 229:12 263:14,20 266:21 294:7,7 294:12 297:17 308:3 402:1 403:9,19 404:1 405:8,9,16 407:24 gradient's 36:15,17 37:1 37:4 38:5 39:9 53:2,18 55:14 56:1,3 113:2 graduate 189:7 great 253:6 290:9 333:15 griffin 3:6 13:3 13:3 grossman 4:16 groundwater 240:22 241:16 241:18 398:2 group 3:2,16 4:3,4,15 12:24 13:2,4 14:3 26:10 50:20	53:16 90:22 100:24 105:6 167:23 172:18 199:8 218:6 285:17 296:17 groups 55:15 170:9 244:13 guarantee 398:22 guess 32:21 33:8 34:14 45:10 118:16 181:4 216:3 218:2 222:10 225:9 227:5 292:16 362:19 365:21 406:2 guidance 239:17 guidelines 123:17 124:3 275:21 276:11 282:1 283:3 291:3 guy 33:18 guys 84:15 220:1 410:5 h ha 306:4 half 121:14 131:1 156:10 halogenated 136:18
---	---	--	--

<p>hand 120:16 271:9 279:2 296:9 311:9 312:20 315:20 319:11 349:6 357:17 366:23 373:14</p> <p>handful 129:15</p> <p>handles 118:5</p> <p>happen 52:2,17 75:19 123:1 213:16 317:2 401:15</p> <p>happened 84:13,17 85:16 109:6 154:12 161:9 162:12 237:1 256:24 257:5 363:14 405:4</p> <p>happening 317:3</p> <p>happens 52:15</p> <p>happy 37:8 107:1 119:6 220:2 221:17 289:1</p> <p>hargett 4:18</p> <p>harm 46:15 168:5</p> <p>harmful 59:22 60:7,8,10,12 102:17</p>	<p>harvard 56:9 56:14,18 57:7 59:11 201:17 202:3,24</p> <p>hazard 22:3,6 270:18 274:24 349:10 353:6</p> <p>hazardous 165:10 271:15</p> <p>hazards 287:5</p> <p>head 121:16 217:4 222:2 290:3</p> <p>health 28:10 29:19 30:8 36:3 56:9,15 56:18 57:9 59:14 67:8,23 68:12 70:9 72:21 92:7,15 97:10 99:11 102:17 104:17 105:7 157:15 162:5 187:4 199:8 201:18 204:9 208:1 210:1 223:9 224:13 228:23 287:5 316:7 317:5 387:9 400:8</p> <p>heard 27:7,10 44:23 163:20</p>	<p>hearing 84:21 100:19 105:15 109:22</p> <p>hearings 106:1</p> <p>heart 58:2</p> <p>heath 7:12 93:16 100:1</p> <p>hedging 215:11</p> <p>held 2:12 12:14</p> <p>help 16:3 105:6 112:21 203:8 296:12 385:21</p> <p>helped 112:9</p> <p>helpful 72:22 169:17 321:6 388:2</p> <p>helping 161:3</p> <p>hennet's 211:9</p> <p>hereof 412:11</p> <p>hiding 95:3</p> <p>hierarchy 390:5</p> <p>high 39:12 116:10 118:12 119:4,5 120:24 121:6 127:16 137:21 167:5 167:12 169:6 209:24 211:13 212:19 214:14 276:24 277:24 316:5 349:12 370:16 371:7 372:1 383:10</p>	<p>386:9,10,23 389:24 391:21 391:24</p> <p>higher 40:15,22 52:8 118:20 278:2 313:6 320:1 327:21 328:4,14 367:2 371:19,20</p> <p>highest 211:20 212:21 370:21</p> <p>highlighted 290:1</p> <p>highlighting 95:21 290:1</p> <p>highly 80:4 81:13</p> <p>highway 138:14 164:1</p> <p>hill 191:21 214:9,18 216:4 216:6</p> <p>hire 102:14</p> <p>hired 36:10 263:15</p> <p>hiring 124:20</p> <p>history 29:24 35:10 55:20 381:16</p> <p>hmm 199:18</p> <p>hoc 7:7</p> <p>hodgkin 353:8</p> <p>hodgkin's 186:1 191:3</p>
---	---	--	--

hodgkin's 229:7 327:23 333:23 335:23 337:12 338:7 hold 128:9 holds 141:7 hominem 93:1 honestly 177:8 200:11 268:1 hopefully 278:5 281:2 hoping 355:3 hopkins 89:19 hour 24:19 131:13 132:2 144:15 180:3 180:20 287:8 403:20 410:8 hours 24:20 41:11 48:4 122:22 155:18 155:19 156:7,7 156:11 220:5 406:19,20 408:6 409:19 410:1 hsia 136:17 hu 11:18 372:22 373:2 374:9 375:21 376:1,4,15 huge 52:16 hugely 221:14	huh 14:24 247:4 human 284:13 286:11 287:24 290:8,24 291:5 293:6 313:4,7 317:5,19 328:7 334:20 humans 39:14 40:3,16 42:1 51:4,15 52:8 165:10,18 275:13,22 276:5,13,17 277:10 281:7 282:4,9 283:5 283:7 285:1,17 286:21,23 291:17 311:15 312:6,12 313:2 313:11,12,17 323:5,8 324:14 324:16 327:20 328:3,10,12 332:20 333:10 333:17 335:19 337:11 hundred 159:8 159:10 164:5 406:20 hundreds 69:16 127:19 159:7,9 378:5	hurt 215:15 256:14 294:8 395:21,24 hypotheses 76:18 300:11 hypothesis 73:18 76:14,21 77:16 hypothesized 75:16 316:22 hypothesizing 76:11 <hr/> i <hr/> i.e. 92:5 93:19 240:22 298:8 iarc 22:5,15 25:6 26:1,6,10 274:19 281:11 285:15,21 286:2,24 287:1 290:10 291:15 291:22 292:20 293:1 320:13 324:8,13,20 325:5,16 326:8 326:10,12 333:16 334:3 335:18 336:4 337:7,10,23 338:15,21 339:3 iarc's 339:13	idea 24:15,21 28:6 30:15 47:24 49:7 52:14 77:14,23 107:17 110:20 146:19 155:15 176:3 182:15 247:19 268:14 307:23 389:3 ideas 316:23 identification 12:4 17:5 45:19 88:1 98:10 101:13 103:11 178:24 199:24 233:14 245:3 271:6 278:20 288:11 289:19 293:14 321:11 330:5 343:9 344:10 344:12,14 357:12 359:11 365:11 369:7 373:6 402:7 identified 375:21 378:8 identify 12:21 47:22 ignore 379:5 ignoring 59:12 ijpc 94:7 imagine 25:2
--	---	--	--

impact 21:17 70:9 265:10 383:3	348:14 349:2,3 350:2 388:1	246:12 247:9 251:20 254:16 255:19 256:13 256:16 257:22 306:2 348:3 355:6,16	indicates 295:2 indirect 241:4 241:19
impacted 21:20	include 55:14 55:17 92:4	256:16 257:22 306:2 348:3 355:6,16	individual 115:6 122:22 156:7 173:19 188:24 228:1 298:1 386:16 386:24 387:6 387:21 388:9 388:13 389:3 390:17 394:17 394:18
impart 192:19	158:15 362:3 368:16 374:9 375:22	incorrect 54:19 95:14 96:24	
impartiality 42:18	included 92:16 93:22 243:21 261:2 364:10	incorrectly 228:9	
imparts 124:14	includes 149:18 198:15	increase 70:15 271:23 272:16 306:24 307:9 308:11,21 326:4 348:21 350:15 403:21 404:1 408:8,14 408:23	
implication 283:11	including 36:16 37:2 59:13 74:24 76:7 82:12 105:11 109:16 141:22 144:4 195:9,9 261:2 296:20 382:18 384:11	incorrectly 228:9	
implies 63:15 145:14 282:12	inconsistent 92:16 93:22 243:21 261:2 364:10	increase 70:15 271:23 272:16 306:24 307:9 308:11,21 326:4 348:21 350:15 403:21 404:1 408:8,14 408:23	individual's 388:16
imply 63:18 96:13	inconsistent 92:16 93:22 243:21 261:2 364:10	increased 80:5 81:15 272:7 320:14 337:22 346:17 347:4,9 371:13 399:18 400:13	individuals 75:3 133:22 134:15 152:14 199:9 241:12 241:19 296:16 388:24 398:4 400:14
implying 284:6 322:13	inconclusive 285:1	increased 80:5 81:15 272:7 320:14 337:22 346:17 347:4,9 371:13 399:18 400:13	indoor 387:17
importance 96:3	inconsistent 92:16 93:22 243:21 261:2 364:10	increases 371:6	induced 328:9
important 14:14 15:8,16 15:18 30:13 95:18 105:21 109:7	inconsistent 92:16 93:22 243:21 261:2 364:10	independent 76:4 82:9 149:22 407:10	industrial 8:10 96:1 136:20 382:17
impossible 302:16	inconsistent 92:16 93:22 243:21 261:2 364:10	index 6:1	industries 31:22 102:14
improper 309:21	inconsistent 92:16 93:22 243:21 261:2 364:10	indicate 296:23 342:11	industry 7:21 19:23 20:5,8,9 22:24 27:8,21 29:19 30:12 32:18,24 36:15
improve 22:15	inconsistent 92:16 93:22 243:21 261:2 364:10	indicated 107:24 279:9 412:10	
inaccurate 154:11	inconsistent 92:16 93:22 243:21 261:2 364:10		
inappropriate 169:8 370:17	inconsistent 92:16 93:22 243:21 261:2 364:10		
incidence 8:8 234:21 346:2	inconsistent 92:16 93:22 243:21 261:2 364:10		

<p>37:2 38:13,14 55:21 59:24 60:22 101:18 167:15,23 168:9 169:15 170:3,9 171:20 172:18 industry's 8:2 105:6 inep 7:13 88:13 88:19 91:12 92:3,10 95:20 inep's 7:16 91:1 98:21 infant 101:6 102:2 infer 304:4 305:2 infiltration 95:23 inflammation 381:16 influence 85:12 104:2 174:22 information 72:22 106:14 107:4 124:19 126:17 130:4 134:8 142:18 150:3 205:1,19 206:8,21 214:3 227:20 229:21 292:24 318:14 320:16 322:8</p>	<p>322:12 348:9 362:7 368:3 378:9 386:15 387:16 388:19 388:21 396:15 398:5 informative 274:6 314:1 317:4 360:12 360:15 362:10 363:10 364:9 396:6 ingestion 278:10,11 inhalation 199:9 277:15 277:21 278:10 326:5 inhaling 113:13 inhibition 75:1 initiatives 92:1 injured 159:16 159:19 161:4 161:24 162:3 injury 161:3 inputs 387:19 insert 363:13 insist 396:16 instances 356:6 360:9 institute 36:2 55:16 186:22 299:6,14,20 314:11</p>	<p>institutes 56:18 instruct 117:20 126:19 instructed 201:21 instructing 117:9 instruction 124:8 instructor 202:1 integrity 36:14 44:24 45:12 87:7,14 92:6 99:18 intend 153:14 265:3 intended 193:24 286:2 302:15 396:9 intending 31:14 104:10 153:3 193:22 283:20 343:23 intensity 372:18 intention 108:12,20 110:13 408:8 interchangea... 151:10 interchangea... 146:14</p>	<p>interest 7:14,17 20:18 21:13 23:22 29:16 31:17,21 35:23 42:17 80:8,18 88:14 91:21 94:9,23 95:23 98:22 104:7 157:14 167:16 167:20 168:3,4 168:10,12 169:13,14 172:1 175:20 183:13 184:5 246:5,6 256:8 353:5 interested 104:6 413:16 interesting 73:17 interests 21:16 36:12 94:10 100:7 internal 244:9 247:2 346:11 346:15 400:5 internally 256:13 330:19 international 59:4 90:21 92:7 274:20 internationally 22:4</p>
---	---	---	---

<p>interpret 355:18 398:11</p> <p>interpretation 85:23 271:18 271:19 379:9 383:4</p> <p>interpreted 83:7 356:8</p> <p>interpreting 273:6 350:16</p> <p>interprets 348:8</p> <p>interrupt 233:24 359:24</p> <p>interspecies 313:8</p> <p>interval 270:19 271:16 349:11 349:15,22 362:22 365:20 370:7,19 371:22 373:15</p> <p>intervals 370:12,20 371:9,14</p> <p>interview 105:9 109:14 110:3</p> <p>interviewed 38:7</p> <p>intrinsic 387:18</p> <p>invest 177:15 177:17</p>	<p>invested 178:4 181:22 184:14</p> <p>investigated 51:11</p> <p>investigation 93:16</p> <p>investigative 36:13 100:1</p> <p>invited 202:22</p> <p>invoice 7:2 17:24 118:2,4 119:19 120:5 121:21 145:3 152:18 153:11 405:17 406:22 408:4</p> <p>invoices 7:1 115:23 118:6,6 119:6,7 121:8 147:10 153:6 153:20 155:9 403:13 404:20 406:3,23</p> <p>involve 198:20 382:17</p> <p>involved 23:2 23:14 111:18 112:19 201:4</p> <p>involving 188:14</p> <p>iom2003 332:2</p> <p>ionizing 76:7 79:6 82:12,18</p>	<p>island 202:8</p> <p>issue 20:8,10 30:24 51:22 52:4 67:12 84:14 88:20 94:19 95:4,5 95:19 135:12 142:16 197:20 205:3 206:9 207:16 208:24 209:3,9,11 212:21,22 213:1 224:7 228:21,24 252:11 265:19 266:17 268:16 274:17 292:9 292:19 320:5 354:15 390:11 394:24 397:2 399:20 401:17</p> <p>issues 27:5 34:14 62:18,24 69:18 72:7 91:19 92:15 95:24 97:18 100:16 111:19 137:2 138:17 161:6 228:24 246:3,8 339:16 379:17 390:10</p> <p>italy 92:8</p> <p>items 134:2 150:17 230:4</p>	<p>259:18 314:17</p> <p style="text-align: center;">j</p> <p>j.j. 3:18</p> <p>jane 90:2,6 97:2,4 99:3</p> <p>january 7:10 8:3 9:17 43:19 150:11 151:3,7</p> <p>jennifer 89:4,6 89:11</p> <p>jersey 138:21 139:7,10,19</p> <p>jgoodman 107:5</p> <p>jim 5:23</p> <p>jj 13:1</p> <p>jj.snidow 3:23</p> <p>job 1:24 25:7 25:10 84:20 152:22 153:8 154:1,22 362:11 383:7</p> <p>johns 89:19</p> <p>johnson 5:6 13:5,6 16:13 17:6 18:3,6,9 18:12 23:5 24:1 26:21 32:19 34:10 35:15 37:15 40:6,18 41:8 41:13 49:13 50:13 52:10</p>
---	--	--	---

57:16 58:17	208:16 210:19	327:16 329:8	410:20
60:4 62:4,12	213:7 214:24	331:11 332:24	join 108:4
63:10 65:11	215:9 216:19	334:24 336:9	joke 202:11
66:12 67:16	217:4 218:15	337:15 338:8	journal 10:1
68:6,16 70:5	219:8,18	338:19 339:2	83:23 128:18
71:17 72:10	223:16 228:15	339:11,23	167:17 293:24
73:6 82:1	239:7 245:9	340:20 342:1	294:3 295:9
85:20 87:17	252:16 254:18	343:22 344:2,5	journalist
93:9 107:9	257:17 258:17	346:19 347:16	100:2 103:19
109:3 110:21	258:20,23	348:4 350:9	journals
111:10,13,21	259:23 264:4	351:2 353:23	128:18
112:16 116:14	267:2,7 269:8	354:22 355:13	judge 113:1,17
116:17,21	276:7 286:6	356:14 357:22	396:16
117:7,18	287:7,12 288:2	358:2,4 360:20	julie 1:14 2:12
119:11 126:8	288:17 289:3,6	363:17,20	6:2,10,13,16,19
131:12,16	289:9,12	364:4 365:24	6:22 7:20 8:4
132:5,24 133:4	290:18 291:6	366:16 367:18	12:20 13:15
133:9 135:7	292:4 295:14	371:1 372:8	19:21 53:18
138:5 140:19	295:21 297:4	375:3 376:12	93:23 100:4
142:6 143:2,24	297:19 298:20	377:10 378:2	101:17,23
151:1,22	300:24 302:4	378:16 379:12	107:5 144:24
153:22 155:4	303:14 305:8	381:3 384:7,21	221:3 412:19
161:21 170:11	307:13 308:24	385:7 386:11	june 11:12
174:4 183:23	309:4 310:2	387:1 390:7	junior 65:7
184:10 185:19	312:14 313:21	391:4,17	156:18,21
186:13 187:19	314:21 315:15	393:11,15	157:8 158:19
189:2 190:2	316:19 317:16	395:8 397:6	197:7 213:15
191:12 192:6	318:10,20	398:16 399:11	213:21 214:1
193:11 194:19	319:5,22	399:23 400:19	215:20
196:2 197:17	320:19,23	401:18 404:7	junk 93:24 94:3
198:7 199:12	321:18,21	404:14 405:12	100:5
200:23 204:21	323:10,14	405:18 407:3	justice 2:15 5:4
205:4,8,17	324:3,11,23	407:14 408:15	40:9 122:14
207:18 208:13	325:11 327:3	409:1,4 410:9	125:23 126:24

127:9 146:19 152:24 153:12 153:19 155:2 203:16,22 403:8 405:10	249:10 251:4 253:7,15 254:13 255:4 276:23 277:2 279:10,12,15 279:20 280:8 280:20 320:8 320:15,18 322:7,18 323:9 323:24 324:9 324:15 325:6 325:10,18,24 326:4 334:22 335:5,10,14,21 353:6 356:23 357:3 358:9,22 361:10 364:14 364:17 368:17 368:24 377:7	know 14:10,21 15:5 16:9 22:23,24 23:10 23:12 26:23 29:12 32:5,22 33:18 43:4 44:12,15,18,21 44:23 45:5,10 49:11,15 56:2 60:18 62:6,11 72:7,22 74:11 81:9,19,20 82:19 84:13,16 84:19,22 85:2 86:3,16 87:6,9 87:13 90:22 91:4 92:21 94:22 97:16,23 98:2 99:4 102:5 104:19 106:13,18 107:16,17 110:11 111:1 113:7,10,10,11 114:13 115:9 116:8,9 122:16 122:20 123:8 124:22 125:14 126:6,9 127:7 127:12,17,18 129:9,13 131:2 131:8,10 134:8 135:23,24 138:24 139:18	140:3,6 141:18 141:21 142:8 142:13,14,15 142:18 143:13 143:14,16,17 143:18,22 144:3 146:15 148:7 150:4,8 151:24 155:17 155:18,24 156:5,9 159:9 159:12 161:16 162:4 163:9,13 163:14 166:9 166:11 167:2,6 167:13,24 168:7,8,16,19 169:1,12 170:2 176:1,6,9,12,13 176:21,21,23 177:2,6,9,13,17 177:21 178:3 180:14 181:6,8 181:21 182:5,7 182:9,10 183:2 183:5,6,11,15 183:16,18,20 183:22 184:3,9 184:12 192:24 193:9 194:14 194:15 196:16 200:9 202:9 206:13 209:2 211:12,14
k			
kailey 5:9 kailey.silvers... 5:17 keep 48:5 123:5 keeping 132:1 keller 3:17 kellerpostma... 3:23,24 kept 58:1 142:11 kidney 6:12 17:15 185:24 190:17,19,23 195:15 197:15 197:16 207:12 217:20 218:3 222:11,21 224:7 225:3,23 226:5 229:6 230:23 232:15 233:3,10 234:24 237:19 240:3,14 241:8 241:11,24 244:20 246:4 247:14,18,20 248:13,18	kim 152:18 153:2,3,12,14 154:16 kind 16:3 18:10 147:1 151:8,9 154:21 171:14 180:3,3 211:8 214:6 216:20 232:9 303:4 380:7 394:8,14 396:20 knew 71:4 84:6 91:8 121:5 161:18 162:1,1 176:24 227:12		

214:9 215:15 217:7 222:11 223:7 224:10 224:16,18 225:2,4,21 226:5,5,9,17,20 236:10 241:20 243:13 245:10 250:6 254:4 258:6 262:9 263:3 265:16 268:7,10,10,12 268:12 273:8 275:23 277:17 285:10 286:11 303:3,3,4 307:19 310:14 318:24 323:21 326:24 353:19 354:13 358:17 360:13 372:24 373:21 378:7 383:21 389:11 389:20 390:11 390:19,21 391:13 392:10 394:13 396:23 402:21 403:24 404:4,9 405:20 405:24 406:10 407:22 408:10 408:18,19 410:5	<p>knowing 386:17</p> <p>knowledge 96:2 185:14 186:9 187:2,18 187:22 192:11 263:19</p> <p>knowledgeable 95:7 227:1</p> <p>known 82:21 99:3 265:5 282:7 286:11 287:24 290:8 291:5 293:6</p> <p style="text-align: center;">I</p> <p>I 2:16 5:11 8:7 12:14 357:6</p> <p>lab 114:9,11,14 114:16 148:6 161:15 162:16 162:17 164:11</p> <p>lab's 162:10</p> <p>label 348:14</p> <p>labeled 242:12</p> <p>labor 120:17</p> <p>laboratory 148:10,16,21 148:22 160:15</p> <p>lack 274:14 387:10,17 389:15 401:9</p> <p>lacresha 5:6 13:5</p>	<p>lacresha.a.jo... 5:14</p> <p>lamacchia 4:7</p> <p>language 171:15 285:6 285:11,13 286:1,5 299:5 299:12 328:23</p> <p>lanphear 46:13 49:11 50:2</p> <p>largely 306:1</p> <p>largest 177:5 182:17</p> <p>latency 238:8 238:19 240:4 240:10 253:16 254:7 256:6</p> <p>lateral 340:19 341:11</p> <p>laugh 16:17 28:2 29:11,12 51:24 87:12 92:20 115:11 136:22 140:6 141:13 152:1 156:4 163:8 177:8 184:13 189:6 193:14 202:12 254:2 312:2</p> <p>law 33:11,14,22 34:1,1,9 69:14 86:21,23 199:6 201:4</p>	<p>lawsuit 111:18 112:11 161:14</p> <p>lawsuits 161:10 161:14,19 162:2</p> <p>lawyer 72:13 253:13</p> <p>lawyers 65:3 260:9</p> <p>lay 273:6</p> <p>lead 46:6,15,20 47:6,18 48:16 48:22 49:1 65:24 70:3,8 138:22 271:18 327:21 328:4 328:13,20</p> <p>leadership 3:2 3:16 4:3,15 12:24 13:2,4 14:3</p> <p>leading 56:5 58:24 362:12</p> <p>lean 250:2</p> <p>learned 195:8</p> <p>leave 378:22</p> <p>leaving 387:14</p> <p>led 29:20 36:16 36:16 37:2,3 316:16</p> <p>lee 4:6</p> <p>left 69:2 122:8 229:24 271:9 296:9 298:5,22</p>
--	--	---	--

311:23 312:20 319:11 349:6 357:17 366:23 367:15 369:22 373:14 392:10 404:19 legal 4:4 66:15 legislation 101:5 102:1 leibensperger 113:1 lejeune 1:7 8:12,18 9:16 10:10,17,22 12:16 14:3 40:9,17 51:21 203:22 207:17 207:24 208:24 209:18 210:18 211:6,16 212:2 212:9 228:5,12 228:14,23 229:5,9 239:5 262:18 277:22 278:3,7,14 347:8 348:20 349:13 352:10 352:17 353:6 356:21 379:21 380:9 387:9 394:20,21 395:13 399:19 400:15 401:7 401:15	lengthy 39:9 53:19 leslie 4:7 97:8 letter 84:2 92:18 99:16 105:21,22 106:3,9,11,14 106:22 107:2 107:14,19,20 109:9 134:19 134:24 260:23 262:3 268:20 268:22 lettering 380:19 letters 84:15 260:14 letting 172:14 leukemia 6:21 17:21 186:1 191:1 195:17 197:16 207:13 229:8 330:21 331:5,18 332:7 332:19 333:9 333:19,20,22 352:4,5,10 385:5 leukemias 331:1 334:5,6 353:8 level 10:2 46:20 47:6,18,22 48:16 70:3,4	154:1,5,23 165:21 166:11 196:8,13,16 197:11,13 214:14 282:16 310:10 342:17 370:16,16 371:18 372:1 383:10 levels 48:22 49:1 59:15 76:2 82:7 165:9,17 166:24 207:16 209:17,20 210:14,18 211:22 212:1,9 212:13 239:18 313:3,4 316:8 360:14 370:15 376:1,2,7 librarian 157:5 librarians 203:1 lie 96:10 light 29:24 113:15 398:11 lights 112:12 likelihood 74:21,22 295:3 298:7,17 301:8 likely 67:7,23 68:2,3 76:8 79:12,16 82:13	205:24 206:4 209:21 237:11 237:12 256:12 256:23 257:5 258:1 282:3,9 282:11 283:4 284:4 286:15 299:17 304:9 304:20,21 312:11 313:19 314:4,5,20 315:6,11 317:14,23 318:24 319:14 319:19,21 342:10 limit 313:11 limitation 40:24 389:9 limitations 78:17 341:1 398:14 409:21 limited 334:23 337:11 339:4,4 339:13,14 387:16 line 31:24 93:3 93:3 150:17 227:2 231:22 248:9 280:19 300:17,19,19 302:17,22 303:1 362:24 371:10 411:3,5
---	---	---	---

411:7,9,11,13 411:15,17,19 411:21,23 linear 27:16 lines 41:21 77:11 205:14 279:3 link 93:22 linked 95:1 105:7 links 95:10 lipworth 253:11,14 list 89:15 91:1 97:14 118:16 152:14,24 200:16 201:12 221:18 247:22 247:23 260:17 260:18 261:1,7 261:10,14,16 261:22 262:1,6 262:8,15 370:18 385:13 385:24 386:6 393:2,5 listed 89:1 120:15 121:24 154:10,15 231:10,11,20 267:16,19 listing 53:19 384:24	lists 99:1 118:2 literally 144:23 150:17 literature 26:14 30:11 53:10,14 71:6 74:2 79:5 85:18,24 148:4 149:17 157:3,6 157:8,9 158:14 167:15 172:19 174:1 185:15 185:15,16 186:11 189:20 190:1 191:10 192:3 193:16 199:7 203:1 221:21 332:5 401:11 litigation 1:7 12:16 14:4 29:21 128:16 137:11,14,16 137:18 159:6 164:20 203:22 205:21,24 208:9 222:12 little 34:4 44:14 57:1,21 64:15 106:9 108:16 123:24 131:13 159:2 192:20 196:11 200:5 212:24 227:15	235:21 246:18 271:23 272:7 278:5 281:2 287:8 379:20 396:8,9 407:11 liver 279:11,16 280:2,7,9 292:11,18,20 322:19,24 334:23 353:7 lives 57:23 58:3 living 56:20 llamacchia 4:13 lle 3:17 lobby 55:15 105:6 location 98:5 logic 399:4 london 97:8 long 10:1 14:22 24:21 91:1 100:9 224:18 291:7 309:4 320:24 325:12 335:1 342:16 392:10 look 15:23 31:23 34:13 39:7 40:22 65:21 71:11,20 72:3 75:7,7 115:21 118:12 119:6 137:19	144:20,21 148:6 150:6 151:8,15,19 153:6 157:12 158:3 163:15 166:5 167:4 179:9 200:16 201:11 212:11 213:12 228:1 230:12,17,18 230:22 231:15 232:8,12,13 233:11,18,20 238:14 240:14 240:24 241:23 242:7 244:8,21 245:21 250:20 251:3,12 253:7 253:23 255:1 255:14 270:21 272:20 273:7 273:11 274:2 278:11 279:1 285:7 286:9 289:2 291:8 292:10 296:7 302:7 304:17 307:24 308:1 309:9 326:14 352:15 357:16 358:15 359:14 360:23 361:3 364:13 365:15 365:16 366:19
---	--	---	---

<p>371:11 373:2 376:22 377:13 382:9 388:24 394:9 401:2,3 402:14 404:23 405:1 408:11 looked 88:11 125:5 145:5 150:1 157:13 195:4 216:7 222:5 227:19 237:4,16 249:1 249:6 250:4 261:11 277:24 300:20 322:23 392:22 394:10 394:17 400:3,5 405:8 406:24 looking 29:3 35:9 41:2 67:5 97:24 109:12 115:22 120:9 121:9 134:9 139:23 144:23 145:15,22,23 152:12 158:13 191:19,19 193:9,15 209:8 211:1 213:5 217:9,9 233:21 235:24 236:13 236:17,18 237:14 288:20 289:24 301:15</p>	<p>303:9 307:16 321:13,16 357:14 359:14 359:19 360:13 361:4,7 362:8 369:18 370:24 371:17 373:10 373:24 375:9 382:12 383:21 393:24 395:17 404:12 looks 99:8,13 181:15 232:20 250:17 252:8 268:4 366:12 374:14 lorenz 53:18 loss 42:18 251:16 252:4 257:2 lot 64:19 74:10 106:6 115:11 122:17 155:17 155:23 166:10 195:8 213:15 236:18 248:2 263:2 406:24 407:9 low 10:2 27:16 49:1 342:17 370:20 371:6 386:14 389:24 391:21</p>	<p>lower 52:18 212:23 362:22 370:15 lowest 313:6 lunch 219:20 219:24 220:1 luncheon 220:9 lung 306:1 lymphocytic 333:22 lymphohema... 222:7 lymphoma 186:1 191:4 229:7 327:23 333:23 335:23 337:12 338:1,7 353:8</p>	<p>magnitude 69:22 127:13 306:21,22 307:7 308:8,20 309:11,24 310:16 311:2 313:6 mail 94:24 107:5 mails 85:22 main 105:6 maine 101:5,8 101:24 102:6 102:10 103:3,5 maintain 51:15 maintained 51:4 major 251:10 252:2 majority 156:18,20 make 16:18 27:21 43:1 61:12 82:22 86:1,4 101:3 124:20 141:2 158:14,16,21 183:9 223:11 225:8 265:3 286:13 289:3 291:13 298:2 354:10 384:5 396:20,21 398:1 403:21</p>
		m	
		<p>m 3:4 357:5,6 machinery 357:16 made 38:1 40:20 82:15 89:13 132:20 165:23 217:8 260:4 261:24 262:6 265:7 290:2 320:13 349:22 363:11 378:7 384:19 404:1</p>	

408:12	60:8,11,13	188:1 189:4	293:15 294:9
makes 74:3	62:7,17 63:12	190:5 191:22	295:17 296:1
89:11 188:24	65:16 66:17	192:15 193:20	297:9,23
189:9	67:20 68:4,8	195:1 196:6	298:21 299:2
making 16:4	68:14,18 69:1	197:21 198:11	301:5 302:10
51:20 52:20	70:11 71:22	199:15,20	303:18 305:12
54:17 83:3	72:11 73:14	200:2,21 201:1	308:4 309:2,6
89:6 111:6	77:8,17 82:4	201:2 204:24	310:20 312:18
247:18 341:20	86:2 87:21	205:6,11,15,18	314:8 315:2,19
male 325:10,18	88:2 93:13	208:2,21	317:6,24
325:24 359:16	98:7,13 101:10	210:24 214:16	318:15 319:2,8
males 361:8	101:15 103:8	215:3,13,17	320:2,20
364:7	103:12,14	216:22 217:13	321:12,17,19
malignant	107:22 109:10	219:1,15,22	321:24 323:12
322:19	110:23 111:12	220:2 221:11	323:19 324:7
mammalian	111:14,15,23	223:19 229:1	324:18 325:4
325:6	112:18 116:20	233:17 234:10	325:15 327:5
manager 118:5	117:3,13,23	234:18 239:9	327:19 329:15
182:11 223:22	119:15,17	239:13,19	330:7,10
229:20	126:11,21	244:22 245:6	331:12 333:5
mandell 3:3,3,4	128:9,10	245:11,19,20	335:6 336:13
3:7 6:3 12:23	131:14,17,24	252:18 254:24	338:3,14,23
12:23 13:22	132:7 133:1,6	256:20 257:19	339:7,18 340:7
14:1 16:20	133:11 135:4	258:18,22,24	341:3 342:3
17:2,7 18:4,8	135:11,13	260:2 264:8	343:4,10,12,13
18:11,15,16	138:9 140:21	267:4,6,10,11	343:20 344:1,4
23:8 24:7 27:1	142:9 143:12	269:15 271:8	344:18 345:2
33:1 34:17	144:2 151:5	276:9 278:15	346:22 347:22
35:17 37:19	152:2 154:2	278:21 286:19	348:10 350:12
40:8 41:5,10	155:10 161:23	287:10,19	351:9 352:20
41:15 42:4	170:13 174:6	288:6,14,19	353:1,2 354:1
45:16,21 49:17	178:20 179:1	289:5,7,11,14	355:2,21
50:17 52:19	183:24 184:15	289:23 290:20	356:18 357:13
57:20 58:20	185:21 186:17	291:9 292:6,7	357:24 358:3,7

359:12,18,22 360:24 363:18 364:1,12 365:14 366:4 366:18 367:21 369:9 371:4 372:12 373:7 375:5 376:19 377:18 378:12 379:8,19 381:7 382:11,14 384:15 385:4,9 386:20 387:3 390:18 391:8 391:19 392:8 392:11,20 393:14,17 395:9,22 396:7 397:10,22 399:5,16 400:10,23 401:23 402:3,8 404:10,15 405:14,22 407:6,17 408:21 409:9 409:17 410:17 manner 15:23 37:10 55:3 243:14,22 manufacture 94:12 100:10 136:13 177:18 177:24 183:18	manufactured 33:7 manufacturer 39:10 55:18 manufacturers 33:3,5 64:24 manuscript 22:3,13 23:22 25:4 30:18 271:14 manuscripts 20:15 21:3,10 24:18 march 10:6 118:3 120:6 121:9 405:7,7 405:8,16 407:20 408:1 413:24 marine 8:12 10:16 marines 8:8 10:8,14,19 344:21 346:17 347:9 348:19 349:8 352:10 352:11 380:17 380:17 388:3 mark 3:7 17:3 45:16 98:8 101:11 103:9 178:20 244:23 278:16 343:4 365:7 369:4	410:8 marked 12:3 17:4,8,10 45:18 87:24 98:9,17 101:12 103:10 115:19 119:7 152:7 178:23 199:23 207:5 233:13 245:2 258:14 271:5 278:19 288:10 289:18 293:13 321:10 330:4 343:8 344:9,11,13,19 344:22,24 357:11 359:10 359:13 365:10 369:6 373:5 386:8 402:4,6 marlboro 112:12 maryland 89:19 massachusetts 111:20 113:1 202:6 master's 186:19 match 200:17 matched 57:10 material 406:17	materials 124:11 260:15 260:17,17 261:7,10,11,22 268:4,6,17 407:16 matrix 362:11 matter 12:15 38:19 80:22 166:16 181:17 363:19,23 381:9 412:6 maximum 211:22 212:17 mbmjustice.c... 3:11,12,13,14 mccaffrey 3:5 mcdonnell 61:10,17,20 62:3 mclaughlin 11:3 357:1,6 mean 23:16 25:11,12 33:6 38:23 39:6 41:6 48:3 66:14 72:1 75:6,18 81:8 81:16 83:8 106:4 114:8 123:8,20 130:9 138:4 143:4,7 145:16,21 146:14,23
--	---	---	--

147:11,14,18 147:24 148:6 150:24 153:3 153:14 156:22 168:2 174:8 176:10 180:11 195:2,7 196:16 196:18,21 201:24 203:11 209:7,8 215:4 216:24 221:14 222:17,24 223:1,3 226:17 229:4 233:23 239:12 248:7,8 249:16 250:1 250:10 265:14 272:8,11 277:2 277:12,14 280:5 296:18 299:8 300:14 300:14 309:13 310:5 334:3 362:8 374:14 376:21 398:8 meaning 26:7 40:9 54:23 104:20 123:10 123:22 125:10 127:14 128:17 144:3 148:3,15 148:22 154:4 157:21 158:1 166:19 193:7	202:13 206:3 209:12 214:22 216:5 217:17 218:14 223:20 236:6 250:14 257:13 272:18 274:1 302:2 315:6,11,12 339:14 346:15 381:14 391:20 396:22 meaningful 351:22,24 353:17,18,20 354:15 356:3,4 389:2 meaningfuln... 396:24 means 181:22 212:18 269:24 282:13 299:9 311:5 339:5 389:16 391:13 meant 28:1 99:5 111:1 151:7 163:15 242:9 317:3 323:18 383:9 measure 56:21 394:7 measured 211:20 212:18 240:22 241:17 316:9	measurement 240:22 241:4 241:16,19 mechanism 75:17,18 76:12 76:19 145:18 148:8 185:16 186:12 189:20 192:4 316:15 317:11 318:5,7 mechanisms 74:24 316:3,6 316:7 mechanistic 76:18 214:11 320:16 322:8 322:12 340:6 medical 114:20 114:23 184:21 184:23 195:11 202:5,6 medication 306:3 medicine 97:10 299:6,15 314:11 medicine's 299:21 medium 370:15 391:21 meet 7:11 8:2 26:11,13,15 93:19 100:3 123:11,18,23	179:15,20,24 180:2 203:8 meeting 180:19 member 22:23 91:1,5,11 94:5 167:15 201:16 members 23:1 23:10 59:5 91:6 95:5 156:19,21 169:15 227:9 memory 74:6,8 78:14,22 men 362:12 365:2,3,17 366:12 367:11 367:12,23,24 368:10 373:14 mention 76:19 110:9 165:13 260:1 280:6,18 mentioned 76:18,22 81:6 105:14 109:20 120:23 129:23 129:24 130:2 134:18 175:2 266:10 mentioning 192:17 mentions 199:4 merit 2:22 37:24 38:1 250:13
--	--	---	--

merits 36:17 37:4,13 38:4,5 meso 81:18 133:16 mesothelioma 34:16 65:20 66:11,23 70:15 71:8 72:15 73:22 75:3 76:3 77:5 78:10 79:7,10 79:14 80:6 81:5,16 82:8 82:19 83:2,9 84:10 133:18 messing 254:1 met 14:1 178:5 178:6,13 179:13 meta 150:2 201:22 203:6,9 275:20 280:14 280:16,17 method 40:23 249:18 250:7 351:15 381:20 381:23 methodologi... 340:24 methodology 16:3 21:4 25:24 26:2 28:7,19,22 355:17 356:13	methods 16:5 21:4 80:24 166:13 211:10 211:11 270:2 296:10 398:10 metric 350:19 351:1,6 363:10 363:10,12 metrics 123:6,7 123:7,9 miceli 4:17 michael 3:5 middle 200:4,5 330:11 369:22 milberg 4:16 milberg.com 4:21 military 138:14 164:1 million 57:9 118:9 119:2 125:2,11 127:14,15,21 128:1,13 129:11 130:6,7 139:22 140:17 141:3,23 142:23 173:10 173:15 183:3 297:17 369:23 369:24 405:10 millions 121:5 172:24 173:4,7 173:18 174:2	mind 28:8 90:19 93:3 266:18 289:8 289:10 356:20 mine 215:23 217:11 mined 33:6,8 minimal 239:17 minute 14:1 234:2,5 245:8 346:20 375:23 minutes 106:5 132:2 220:5 234:1 misinformation 50:21 54:2 104:3 misleading 35:10 36:23 37:6 38:8 45:14 283:24 284:2,8,10 285:22 mispronounc... 74:20 misrepresenti... 347:20 missed 158:15 203:11 372:21 missing 243:23 378:9 missouri 51:11 misspeak 323:20	misspoke 323:17 mistake 249:8 257:1,4 377:4 mistakes 377:6 377:9 378:6 mixed 329:24 mmandell 3:14 mmcaffrey 3:12 moa 315:23 moas 316:1 mode 166:14 166:15 316:16 317:19 318:17 318:18 modeling 210:7 210:15,17 212:4,8 models 28:9 387:19 modes 316:22 modestly 271:20 272:4 modification 11:20 molecule 70:8 moment 289:13 money 104:2 129:5 136:2 139:24 141:2 monitors 56:21 monograph 22:15 26:9,16
---	--	--	---

monotonic 349:9 370:5,10	327:22 333:22 353:7	naturally 169:14	225:7 382:9 409:6
month 121:14 124:4 150:11 150:22 389:5	multnoah 109:21	navistar 55:18 56:2 59:3	needle 314:2 needless 181:10
monthly 388:14	multnomah 105:15 106:20 109:21	navy 8:9 10:8 10:19 348:19 349:8 352:11 352:12 380:18	needs 156:16 156:16 157:2 326:21
months 83:15 105:4 121:12 121:14 124:5	myelodyspla... 332:13	nc 4:19	negative 84:6 89:9 231:13 233:9 237:6 242:4 247:19 248:13,15 249:2,12,12 394:1
morbidity 10:13 239:12 239:16,23 240:3 296:16 296:20,22 344:23 345:7 345:20	myeloid 333:19 myeloma 327:22 333:22 353:8	ncea 9:5,8 near 56:20	necessarily 49:4 105:17 109:24 135:23 149:15 168:4 232:10 266:3 272:14 274:12 296:21 314:3 322:13 354:6 378:24 383:20 389:13
morris 112:10	myriad 63:24	necessarily 108:8 182:16	negatives 394:3
mortality 8:15 10:7,18 238:23 239:8,12 344:20 345:1 352:10,20 388:1,3 391:1	n	need 14:20 29:6 41:8 53:11 95:21 204:9 216:8,9 225:3 232:13 248:4 326:24 345:9 408:14,19	neglected 364:20 374:15 376:17
motives 103:7	n 12:1 39:11,22	needed 25:15 96:12 108:17 108:18 109:1 124:14 157:4	negotiate 402:1
move 281:22 327:1 330:21	name 12:9 13:24 19:6,16 89:14 90:3,5 99:5,6 107:4 129:17 139:19 176:8,23 202:19		negotiation 410:11
moved 368:19	named 33:18 90:10 342:15		neither 413:13 413:15
mph 5:6	names 138:24		nelson 33:19,22 34:5,7,12 64:16 65:4 69:15 70:12,23 71:5,5 72:24 84:14 85:7,17 85:22
mtbe 90:4,10	nasal 313:8		network 90:21 99:9
multiple 40:5 219:5,5 248:23 248:24 249:7 251:23,24	national 10:4 27:18 28:6,13 28:19,23 56:18 102:5,9,9 103:3,4 186:21 281:19 342:18		neurodegener... 340:18 341:10

<p>never 27:10 54:13 55:5 102:11 106:21 113:19 159:15 159:18 163:15 168:18 170:4 185:3,6,9 188:7,10,13 189:15 190:16 190:19,22 268:6 269:21 274:8 308:18 308:22 309:9 309:12,16,20 378:13 new 58:12,15 103:19,22 109:12 112:3 113:23 138:21 139:7,10,19 173:12 268:22 268:22 340:16 396:20 newer 340:16 341:8 news 16:16 nhl 6:18 17:19 195:19 197:16 207:13 222:5 253:23 254:12 279:10,15 280:2,7,8 323:1 334:7,12 334:15,21</p>	<p>335:8,16 336:5 336:6,16,24 337:3,8 338:17 383:16,20 384:17 nickel 167:23 nielsen 11:11 364:17 nine 307:19 nods 121:16 217:4 290:3 non 128:16 137:16 186:1 191:3 199:8 229:7 327:23 333:23 335:23 337:12 338:7 noncancer 28:9 41:3 333:13 noncancerous 27:17 nongovernm... 18:23 nonlymphoc... 332:18 333:9 333:19 nonscientific 85:23 nonsense 51:13 53:2,5 nonsensical 232:10 nonstatistically 361:23 363:15</p>	<p>363:24 nope 94:15 normal 24:15 normally 165:18 north 1:2 12:18 90:8 97:3 northwest 12:14 nose 313:10 notable 264:22 notary 2:22 413:4,22 note 30:9 38:7 noted 79:11,15 271:14 387:8 notes 132:21,23 133:7 notice 2:20 7:3 18:2 249:7 noting 36:17 37:3 38:4 notoriety 36:9 november 9:2 nr 102:9 nrc 211:14,18 211:23,24 390:21 396:3 nrcm 102:9,11 ntp 275:3 281:9 281:16 284:11 284:16,18 285:2,7,24 290:13 293:5</p>	<p>320:13 324:22 null 274:4,10 306:1 308:16 389:10,13,16 398:15,21,23 399:1,9,15 number 6:8 27:19 38:11 39:8 52:21 58:3 62:18 79:7,9,13 87:22 88:4 90:12 91:16 92:17 94:12 98:8 104:5,5 115:12 116:1 118:14,17 119:9 144:23 152:13 155:19 156:6 166:20 166:21 167:3 172:4 259:14 260:3 267:20 267:21 299:13 352:22 364:20 368:11 371:16 371:17 393:12 404:5 405:4 406:22 408:2,3 numbered 352:21 numbering 259:24</p>
--	---	---	---

<p>numbers 261:3 298:3 352:19 371:12,12</p> <p>numeral 118:17</p> <p>numerous 29:20</p> <p>nw 2:16 3:20 5:11</p>	<p>73:6 82:1 87:17 93:9 107:9 109:3 110:21 111:21 112:16 116:14 117:7,18 132:24 140:19 142:6 143:2,24 151:1,22 153:22 155:4 161:21 170:11 174:4 183:23 184:10 185:19 186:13 187:19 189:2 190:2 191:12 192:6 193:11 194:19 196:2 197:17 198:7 199:12 204:21 205:4 207:18 208:13 210:19 213:7 214:24 216:19 218:15 219:8 223:16 228:15 252:16 254:18 256:14 257:17 259:23 264:4 267:2,7 269:8 276:7 286:6 288:2 290:18 291:6 297:4 300:24 302:4 303:14 305:8</p>	<p>307:13 308:24 310:2 313:21 316:19 317:16 318:10,20 319:5,22 320:19,23 323:10 324:3 324:11,23 325:11 327:3 327:16 329:8 331:11 332:24 334:24 337:15 338:8,19 339:2 339:11,23 342:1 347:16 348:4 350:9 351:2 353:23 354:22 355:13 357:22 358:4 360:20 363:17 363:20 364:4 365:24 366:16 371:1 372:8 375:3 376:12 377:10 378:2 378:16 379:12 381:3 384:7,21 385:7 386:11 387:1 390:7 391:4,17 395:8 395:21,24 397:6 398:16 399:11,23 400:19 401:18</p>	<p>405:12,18 407:3,14 408:15 409:1</p> <p>objective 15:17 15:19,23,24 16:8 21:5 25:7 25:12,23 26:2 30:13 55:3 62:23 63:6 80:23 87:12,16 108:24 109:6 147:23 379:7</p> <p>objectively 187:13</p> <p>objectivity 16:19 44:6 50:5 52:2 54:11 62:20 63:3 64:2 84:7 133:23 134:16</p> <p>obligate 313:10</p> <p>observation 307:10</p> <p>observed 306:23 307:1 333:21 335:22 349:10</p> <p>obstruct 94:7</p> <p>obtain 270:2</p> <p>obviously 113:9 167:19</p> <p>occasions 178:16</p>
o			
<p>o 12:1 218:14 218:14</p> <p>oath 37:12 62:1 198:3 412:13</p> <p>object 85:20 294:8 295:14 295:21 297:19 312:14 314:21 336:9 340:20 346:19 356:14 367:18 404:7 404:14</p> <p>objection 16:13 23:5 24:1 26:21 32:19 34:10 35:15 37:15 40:6,18 49:13 50:13 52:10 57:16 58:17 60:4 62:4,12 65:11 66:12 70:5 71:17 72:10</p>			

occupation 242:2,19 243:9 243:13 246:22 247:2	office 106:19 offices 2:12 official 354:7 oftentimes 40:1 172:6,11	48:19 49:2,6 49:18 50:24 52:24 53:12 54:4 55:9 57:14,21 58:7 58:21 59:8,20 60:16 61:6,16 61:19 62:8 63:21,22 64:5 64:19 65:9,23 67:20 68:4,5,9 68:14 69:11,24 70:22 74:6 77:23 78:7,12 79:23 80:12 81:11 83:12,17 88:7,22 89:5 89:12,20 90:12 90:18,24 93:2 97:16,21 98:7 101:10,21 102:8 103:21 104:24 106:18 107:3 110:16 111:8 112:23 113:22 114:2 114:11 116:5 117:4,14 119:7 120:22 122:20 126:18 127:22 128:16 129:13 129:19,22 131:11 132:5 133:12 134:18	134:23 135:4 137:1,3,3 142:21 149:9 149:16 153:17 159:2,13 161:18 162:12 162:14,22 163:19 164:19 167:6,13 170:8 170:19 173:17 173:22 177:17 180:18 181:6 181:10 182:5 184:16 189:15 189:21,22 190:6,16 193:21 195:5 197:11,22 200:6 201:13 205:17 206:19 206:24 207:9 207:10 210:10 212:12 219:16 228:10 229:11 230:8,12,14,15 230:20,21,22 231:3 232:17 233:8 234:6 235:3 236:24 237:18 238:2 239:20 240:6 240:13 241:21 242:24 244:22 248:22 251:3,9
occupational 11:1,4,14,17 242:23 244:3 276:24 277:15 382:4,6 383:13 383:22 384:4 384:14,18	oh 60:11 69:24 111:24 139:11 140:2 173:8,16 180:16 202:15 209:4 219:18 244:1 267:10 321:21 349:17 352:20 365:6 365:15 373:23 375:21		
occupational 360:19	oil 56:14,17 102:13		
occupations 360:19 361:2 382:17,23	okay 13:24 14:12,13,20 15:6,7,10,15,20 17:2 18:3,12 19:11 20:7,13 21:1 22:16 23:9,15,20 24:11,24 27:12 28:1 29:9 31:8 31:15,23 32:3 33:10,18 35:2 35:8,18 36:24 37:20 38:3 39:7 40:4 42:11 43:1,17 44:1,5 46:10 46:23 47:2,9		
occur 316:3,8			
occurred 248:23 256:23 257:16 258:7 263:8 377:22 387:12			
occurrence 240:12			
occurring 35:24			
october 8:14 9:13			
odds 56:8 360:6 370:6,18 371:16 372:2			
offer 412:12			
offhand 168:17			

252:13 253:6	314:16 315:20	403:11 404:11	209:13 212:1
253:10 254:5	319:9 320:5,6	405:23 406:4	228:11 260:16
254:14 255:1	320:11 321:21	406:13,23	266:15 278:9
255:22 258:11	322:15 323:3	407:13,23	355:5 400:2
259:3 260:3,23	323:21,24	408:3	opposed 244:19
261:9,15,18	324:8,22	omitted 358:12	opposite
262:14,17	326:23 327:7	361:24	247:24
263:12,24	327:20 329:16	once 178:11,15	opposition
264:12,24	330:1,18,21	ones 16:11 56:3	263:16
265:18,23	331:15 332:2	126:5 128:3	oral 106:23
266:12,19	332:14,22	133:24 138:2	107:7 108:13
267:5 268:10	333:15 335:11	138:13 157:12	108:22 326:5
270:14 272:10	335:18 336:14	158:3,9,10,20	order 108:24
273:5 274:15	338:24 339:19	166:18,19	219:20 313:6
274:17,18,19	342:4,22,24	177:7 222:1	380:20
275:1,10	343:20 344:5	265:19 360:7	oregon 134:19
277:11 278:15	345:3,4,12,13	360:11,12	organ 325:7
280:19 281:9	345:23 352:3	363:15,24	organization
281:22,23,24	354:14 356:19	onset 255:12	18:23 22:22
283:19 284:1	357:8 358:3,17	operate 53:24	92:7 95:6
284:11,17	358:21 360:3,4	operational	104:18
285:15,24	362:24 365:6	86:14	organizations
286:4 287:6,11	366:6 368:12	opined 228:7	21:15 32:16
289:6 291:13	369:15 370:4	opinion 70:2,3	33:4 91:2,5
292:23 293:5	370:23 371:5	70:8 73:12	92:5 194:9
293:10 294:2	372:22 374:5	79:2 113:20,24	original 212:7
294:14 295:8	374:13,22	207:14 208:20	401:4
295:18 296:7	376:9 379:20	228:19 263:11	originally
297:10,24	381:8,24	264:20 292:22	210:12 232:7
298:15 303:19	383:16 385:24	340:8 354:21	250:5
304:14 306:12	386:3 388:4,8	354:21 386:6	outcome 23:22
307:5 309:9	391:9 392:5	opinions	25:3 41:2,4
310:4 311:7	395:12 400:24	105:16 109:23	67:24 72:21
312:1,19	401:24 402:3	152:7,8 206:5	167:16 168:10

<p>168:13 169:16 169:19,21 223:9 271:17 271:21 400:8 413:17 outcomes 36:3 157:15 169:18 187:4 204:9 208:1 210:1 224:13 outline 213:11 outraged 53:17 outside 35:9,21 72:2 97:18 192:2 206:9 215:19 222:8 222:14,17 outweigh 395:1 outweighed 394:14 overall 144:22 174:3 306:14 306:17,19 315:23 316:9 316:17 318:6 318:17 319:13 320:14 376:23 391:24 overestimated 264:20 389:3 overestimates 209:22,23 264:18 266:5</p>	<p>overhead 30:20 overlap 147:2 227:17 371:15 371:15 overlaps 370:21 overlooked 268:13 overly 264:15 265:8 303:4 oversee 156:17 overseen 223:23 oversight 105:13 106:12 109:20 252:8 374:21 376:10 376:23 overstate 285:23 286:1 287:5 overstating 286:16 own 46:14 61:12 105:17 109:23 175:23 176:4,12 211:11 274:6 274:13 302:11 303:6,12 owned 176:18 owner 182:12 owners 229:21</p>	<p>ownership 175:20 183:13 184:5 owns 175:3 176:6 177:2,23 181:23 ozone 9:10 293:19 294:15 294:17 295:5 296:15,17,19 297:7 298:10 301:11 304:2 306:7,9 307:1 307:10 308:12 313:3 315:24 316:8</p> <hr/> <p style="text-align: center;">p</p> <hr/> <p>p 12:1 p.m. 220:8 p9 75:1 packaging 102:3 page 6:2,8 9:3,6 9:9,18,22 19:15,16 29:14 35:18,19 38:11 39:2 41:21 45:23,24 50:24 55:9 58:22 61:15 77:11 88:23 90:18,24 91:15 94:17 98:19,20 99:16</p>	<p>105:3 110:16 111:3,16 112:6 119:24 120:4,4 120:8,9 144:22 145:5 150:6 151:16 152:11 152:12,24 179:9 180:16 200:3,4 205:14 211:2 230:17 231:4,16 238:12 240:15 242:8 251:4,13 253:8,21,23 255:2,6,15 259:10,10,17 259:17 279:1,1 288:22 289:1 289:24 296:8 298:3 299:13 305:16 306:12 306:13 311:7 312:19 315:20 321:13 345:14 345:16 346:7 348:11 349:2,5 352:4,16,24 357:15,15,17 358:21 359:15 364:13 365:16 366:19,20 368:24 369:18 369:22 372:14 373:11 375:9</p>
---	---	--	---

375:12 376:6 376:16 380:2,4 382:16 383:16 385:11 388:5,7 393:18 402:15 402:24 403:12 404:16 405:1 406:14 411:3,5 411:7,9,11,13 411:15,17,19 411:21,23 pages 233:18 404:12,24 406:10 paid 24:11,13 24:14,17 29:9 34:18,20,22 39:10 65:10 69:15 71:1,2 84:16 105:14 108:10 109:21 128:22,24 129:1 135:14 136:9,12 173:7 174:1 297:16 297:16 panel 46:17 305:24 panels 93:6 95:22 99:20 paper 23:19 24:5 25:3,18 29:4,5 73:9,10 75:8 77:13	78:24 80:1,3,9 81:13 167:19 167:21,24 170:16 295:16 295:18 371:17 papers 21:7,8 40:23 170:3 262:5,9 paperwork 409:23 paragraph 19:20 27:13 28:3 30:5 45:23 46:11 47:12 48:12 51:2,3 55:12 55:13 56:4 57:2 58:7 61:6 91:24 101:22 112:7 271:10 279:2 296:9 301:16 303:23 305:21,22 310:15 311:10 315:22 330:11 345:17 348:17 349:7 352:5,8 372:15 375:19 393:19 paragraphs 110:18 305:22 parameter 271:22	parameters 387:17 park 3:8 parkinson's 6:15 17:17 184:17,19,21 185:2,4,7,10,14 185:24 191:24 192:2,10 193:8 194:12,15,17 194:21 195:3,9 195:11 197:14 197:15 207:12 217:19 222:3 222:22 229:6 238:11 240:4 240:12 241:1,8 242:7,20 243:19 244:8 244:19 246:5 246:20 247:7 247:11,11,15 249:13 255:15 255:23 256:1 256:17 263:10 339:19,22 340:10,19,23 341:12 379:16 379:18 385:10 385:18,20 part 28:18 37:22 38:18 88:10 108:7,17 116:11 135:24	143:6 149:13 151:13 161:13 161:16 188:4 192:19 194:23 195:3 216:8,9 218:19,21,22 225:24 226:3 252:14,15 261:7 264:12 267:9 347:13 398:9 399:6 partanen 11:15 368:16 369:11 369:17 372:20 participants 256:7 participates 13:10 particular 32:2 88:6 95:19 102:16 113:18 116:9,10 122:12 123:12 161:1 174:11 181:3 189:1,24 224:1,8,14 225:22 230:18 308:6 358:11 358:19 360:5 366:11 368:6 373:10 376:24 383:23 385:1 388:20 390:12 394:11
---	---	---	---

<p>particularly 41:3 75:3 186:4 306:4 359:15 394:24 398:7 particulate 166:15 parties 162:3 413:14 partner 65:5 parts 216:16,16 236:8 251:24 264:11 369:23 369:24 passed 203:23 208:12 past 64:20 68:10,11 69:6 69:12 120:21 135:19 171:18 192:9,11 200:17 396:3 pasted 96:22 pat 4:5 path 332:15 pathophysiol... 135:20 patient 185:10 188:13 190:23 patrick 5:23 pattern 329:17 pay 122:18 170:9 172:22 173:17</p>	<p>paychecks 175:17 paying 174:10 payment 34:23 payroll 114:24 pays 143:8,9 pce 136:14 178:1 183:19 183:21 184:7 199:10 201:5 211:20 222:5 262:19 263:1,8 263:17,22 264:1 265:4,24 281:22 282:3,6 282:9 283:4 284:23 286:20 286:23 321:18 325:5,9 326:6 327:10,21 329:23 330:24 336:14,16 346:1,1,15 peer 29:23 30:11,11,23 31:6 35:12 53:10 54:21 90:12 293:24 294:3 295:9,9 pelvic 358:1 penalty 412:1,4 pending 15:3 pendleton 348:19 352:12</p>	<p>352:17 399:21 400:4,15 401:7 people 16:6,16 19:13 23:18 27:4 38:8 50:21,22 64:6 77:13 94:17,20 95:23,24 96:11 100:15 101:1 102:13 104:19 104:22 113:13 115:16,23 134:8 154:15 158:13 162:4,4 169:23 175:14 176:13 178:6 179:15 182:4 196:19,19 197:2 202:22 216:17 217:6 217:16,18,19 217:21,22 218:4,6,11,13 218:19 219:5 219:11 224:3 224:12 225:18 226:18,21 227:4,12,19 230:2 236:7 237:2 248:24 251:23 252:10 253:3 296:22 317:3 322:18 364:10 377:23</p>	<p>383:6 384:12 386:19 388:10 399:18 407:24 people's 143:8 148:4 149:3 152:21 154:1 perceived 257:21 percent 86:16 86:17 131:5 137:20 143:17 143:18 165:15 165:19 166:9 166:21 167:11 167:12 168:8 168:14,16 169:5,7 270:19 299:9 302:17 315:7 365:19 370:7 373:14 percentage 130:19 137:17 140:2 141:6 143:5,10 165:5 166:5 167:6,14 percentages 170:2 perchloroeth... 9:21 perform 149:4 174:1 performed 51:17</p>
---	---	---	--

<p>period 124:5,16 150:16 208:24 209:2,12 238:19 364:22 388:17</p> <p>periods 122:16 212:10,14</p> <p>perjury 412:1,5</p> <p>person 49:12 54:9 66:16 90:4 96:20 97:13 123:13 154:5 161:4 177:9 211:19 223:15,24 224:2,8,14,17 224:17 226:5,6 226:24 227:3 228:5 236:13 237:3,7 249:14 252:1,3 386:17 386:19 388:20 388:21 389:6 390:12,14</p> <p>personal 123:20 130:22 161:3 381:16</p> <p>personally 140:1,16 142:22 182:2 322:9 325:21 336:20</p> <p>personnel 8:9 10:8,19 348:19</p>	<p>349:8 352:11 352:12 380:18</p> <p>persons 161:24</p> <p>pesch 11:7 358:22 359:8 359:13 361:4 361:22 362:6 362:18 363:1</p> <p>peter 34:13 65:8 112:21</p> <p>peter's 85:13</p> <p>petroleum 36:2 55:16</p> <p>ph.d. 6:10,13 6:16,19,22</p> <p>phase 261:3</p> <p>phd 1:14 2:12 6:2 13:15 186:20 221:3 412:19</p> <p>philip 112:10</p> <p>phillips 4:16</p> <p>photocopying 288:24</p> <p>phrase 26:18</p> <p>phrased 97:21 328:18</p> <p>physical 213:4</p> <p>physically 202:14 216:6 225:11</p> <p>pick 267:9 379:3</p>	<p>picture 214:15</p> <p>piece 79:2 172:19 227:19</p> <p>place 98:5 206:13 226:14 240:17 413:10</p> <p>places 45:15,15 146:3 211:7</p> <p>plaintiff 72:20 139:19 159:16 159:20 160:8 160:23 162:19 208:6,8,23 227:23,23 228:2,12 229:5</p> <p>plaintiffs 3:2 3:16 4:3,15 7:3 12:24 13:2,4 14:2 18:2 112:24 205:22 206:10,17 207:1 227:22 228:7 262:12 268:24 378:14 379:10,15</p> <p>plant 387:14</p> <p>plants 56:20</p> <p>platt 5:7 13:7,7 119:13 126:16 126:19 128:7 219:17,23 239:11 260:24 321:15 330:6 352:18,24</p>	<p>plausibility 75:23 76:6 82:11 83:4 315:21</p> <p>plausible 74:24 304:5 317:1</p> <p>play 73:12 209:13</p> <p>please 12:21 13:12 14:10 15:11 18:21 45:17,22 51:1 55:10 68:24 77:6,9 88:23 90:19 98:18 112:2 131:23 221:10 233:18 234:17 237:18 245:18 287:18 288:5 289:22 311:8 319:10 323:21 334:7 344:17 352:16 361:11 364:14 392:19 397:18 409:16</p> <p>plenty 50:22 225:18 363:6</p> <p>pleura 74:23 83:1</p> <p>pliofilm 137:7 222:4</p> <p>plus 118:9 127:15 144:9</p>
---	--	--	---

164:5 166:9,21 pm 220:7 221:2 221:9 234:13 234:16 245:14 245:17 287:14 287:17 289:16 289:21 344:7 344:16 392:14 392:17 397:14 397:17 409:12 409:15 410:22 410:24 point 14:9,21 25:4 39:8 40:21 50:19 66:10 82:22 83:3 136:6 209:5,6 215:1 226:10 247:18 280:5 371:19 379:4 383:5 387:15 pointed 235:13 257:12 377:1 points 147:4 395:3 poking 215:15 policy 90:22 104:3 264:7 266:3 pollutants 35:21 36:3 pollution 56:7 58:12,16 59:3	59:15 pool 150:2 poor 36:17 37:3 38:4,4 88:10 140:24 poorly 97:21 population 244:11 251:9 251:14 252:2 400:7 portion 86:12 portraying 112:11 position 7:13 7:16 18:24 57:15 88:13,20 92:3,10 94:8 96:11,13 98:21 104:5,13,15 229:4 263:21 270:10 354:7 positions 265:4 positive 89:9 279:18 304:6 305:3 306:5 310:22 333:20 335:21 336:11 337:7,14,20 338:6,16 358:12,13 363:16 394:1 401:14 positively 87:15 390:20	positives 394:3 possibility 237:1,10 410:3 possible 70:17 75:16 173:16 211:22 233:11 236:5,14 316:23 338:11 377:21 384:11 385:2 394:12 404:8 possibly 263:2 postman 3:17 pot 125:14 potential 66:10 164:22 211:15 242:3,19,23 246:22 278:2 382:4,6,19 383:12 384:4 384:18 389:9 398:5 potentially 10:15 power 56:17 79:17 powerful 55:15 practices 22:4 pre 10:1 precise 22:24 134:11 225:9 406:22 precisely 124:24 131:2	155:22 158:18 168:20 predict 387:19 predictor 367:1 prematurely 58:2 prepare 406:16 409:7 prepared 406:4 preparing 107:18,19 presence 74:19 319:15,21 present 5:22 199:7 203:10 presentations 29:21 presents 80:3 81:13 pressure 58:10 presume 54:14 183:12 pretty 23:4 41:12 215:3 216:23 217:1 prevent 16:3 56:6 385:20 prevention 46:18 47:4,16 48:15,21 186:21 354:8 previous 301:16 403:7
---	---	--	--

<p>previously 17:10 198:13 221:5 price 403:2,3,7 primarily 19:23 20:5,9 175:10 primary 202:4 246:5 353:5 356:7 principal 19:21 65:5 118:13 125:18 144:24 152:3,17,19 153:1,3,7,7,13 153:14 154:10 154:17 182:12 principals 118:16 124:6 142:12 165:1 principle 91:6 printed 370:14 prior 43:9 113:22 160:18 201:12 221:20 255:12 364:22 365:23 381:15 410:11 private 35:22 176:7,19,22 177:6,10,14 182:17 privilege 409:4</p>	<p>privileged 116:19 117:8 117:19 126:17 128:6,8 204:22 205:5,7 208:17 213:8 215:1 216:21 407:16 probably 25:20 70:20 83:15 130:18 144:11 166:22 257:24 285:16 286:15 286:20 303:3,9 problems 59:14 proceed 68:24 131:23 221:10 234:17 245:18 287:18 289:22 344:17 392:19 397:18 409:16 410:10 process 26:7 106:2 107:17 250:14 processes 105:11 109:16 prodding 215:16 216:20 produce 135:2 177:19 183:20 produced 64:24 117:14 126:14 263:6 266:22,23</p>	<p>product 116:12 117:5,15 production 7:4 402:5 products 46:3 profession 15:16 professional 95:21 189:8 194:8 professor 46:14 51:11 89:18 96:17 97:9,9 202:3,20 profits 183:9 prognosis 185:1 program 22:15 26:10 99:10 progression 135:20 project 65:24 115:6,8,10,17 116:3,9,10 118:5,21 120:20 121:22 122:15,23 123:3 125:19 132:21 133:3 135:18,23 152:4,22 153:1 153:4,13 154:19,24 156:1,14</p>	<p>174:11 200:12 203:5 223:21 408:1 projects 36:15 37:2,6,7 115:6 130:13,16 137:16 141:22 173:10,21 174:2,9 188:20 192:9,11 194:15 199:5 200:17 201:12 203:9 221:22 222:3,13 proof 10:1 205:2,21 properly 26:18 proposed 227:23 316:2,7 proposition 65:19 74:3 78:1,9 324:10 propyl 39:11 39:22 protect 95:21 protected 133:9 protection 90:7 92:15 protein 75:1 protocol 7:9 19:2 42:20 provide 24:4 107:1 150:3</p>
--	--	--	---

<p>259:15,16 260:7,12 274:12 311:13 311:19 312:4 328:7 329:17 368:2 396:15 provided 362:7 providence 3:9 provides 276:23 providing 164:19 292:21 proxy 242:3,19 246:22 pruitt 153:6 ptelan 4:11 public 2:22 36:13 39:10 44:24 45:12 56:9 87:7,13 89:6 92:5,7,15 97:9 99:18 102:17 128:19 130:3 201:17 387:9 413:4,22 publication 22:7,16 23:24 27:15 28:15 29:7 30:14 65:15 73:16 78:8 79:1 86:9 134:7,7 167:17 174:23 295:19</p>	<p>publications 23:17 27:20 29:21 32:11 53:6 54:22 84:16 87:1,4 164:22 170:10 171:22 173:5 263:16 265:3 publicly 16:7 64:10 84:4 97:24 134:2 263:16,21 publish 26:16 33:21 34:9 35:2,4 57:6 70:14 133:16 172:13 published 20:14 21:2,10 25:1 30:10 35:20 47:20 48:24 59:2 74:4 79:4 86:21 92:2 93:16 100:2 133:14,15,17 167:8 172:8 174:14 221:21 222:4,5 238:23 293:23 295:8 342:15 publishing 172:19</p>	<p>pull 157:10 158:2,21 326:24 pulling 156:22 158:8 pulls 26:10 purpose 146:17 179:19 purposes 210:7 pursuant 2:20 purview 35:21 push 314:2 put 17:9 19:6 23:24 28:6,13 31:20 32:1 35:11 42:2 54:24 58:16 73:5 78:1,9 88:19 102:15 103:4 104:4,11 132:3 142:16 145:13 146:8 146:21,23 147:13,17 154:3 155:23 209:20 232:6 235:14,15,18 235:22 236:7 248:11 249:11 250:5 261:13 302:17 303:10 316:24 364:8 374:2,8,15,19 377:17 378:14</p>	<p>384:1,16 410:6 puts 56:7 putting 261:10 410:4</p> <hr/> <p style="text-align: center;">q</p> <hr/> <p>qc 226:23 qc'd 226:22 qing 256:24 qualifications 198:24 qualifier 326:14 quality 55:19 129:20 191:19 214:1,4 231:6 235:5 339:17 379:6 386:9,10 386:14,23 389:23 391:2 391:11,14,21 391:24 392:22 392:23 393:10 394:8,17 quantitative 231:12 233:4 235:22 236:1 236:19 237:5 quarters 349:13 question 14:9 14:11 15:3,4 15:11 24:6 26:17 31:3,4</p>
--	---	---	---

40:14 41:14,16 41:17,23 46:16 47:3,15 48:6 48:14,20 63:1 63:11,18 64:1 66:15 67:17 68:5 69:3 70:1 72:3 85:1 88:10 97:19,22 105:1 108:15 110:24 116:16 123:24 132:9 134:12 138:8 140:22,24 154:14,20 158:18 163:12 165:16 170:14 182:19 188:2 189:5,11 193:23,23 196:11 205:12 207:2 210:12 212:7 213:19 213:21 216:3 217:3 218:2 219:2 221:15 223:11 224:15 225:10 230:6 230:19 236:4 236:21,22,24 237:9 243:2,3 252:19 255:4 257:20 258:2 270:8 277:5	278:6 279:6 292:5 309:7 310:6 317:7 322:1 324:20 334:9 355:1 359:21 365:21 366:10 369:11 379:24 380:7 380:11 385:11 396:8,10 397:20 402:2 407:18 408:13 questioning 50:4 54:10 62:20 63:3 84:6 133:23 134:15 questions 14:8 14:16 183:8 250:11 379:22 409:18 410:7 410:15 queue 108:4 quibbling 380:22 quick 343:21 quickly 102:12 343:5 quite 113:16 140:8,8 229:16 267:8 quote 283:9,17 283:18,20,22 291:10,11,12	321:5 329:21 403:7 quoted 16:17 quotes 46:11 321:7 r r 12:1 raaschou 11:11 364:17 race 242:18 radiation 76:8 79:6 82:13,18 radioactive 82:23 radionuclides 74:19,20 76:7 82:12 raleigh 4:19 ramazzini 92:6 randolph 4:6 range 95:17 ranges 349:12 349:17 ranging 271:22 272:6,15 rank 195:23 rare 46:1 73:22 rate 154:6 267:21 rates 39:12 313:9 rather 37:23 214:14 218:10	368:1 387:15 ratio 270:18 271:15 349:16 349:19,22 368:6 370:6,18 371:17 372:2 ratios 313:10 349:10 353:6 360:6 363:13 rats 39:13 325:10,18,24 326:17 reach 173:24 reached 65:4,8 read 20:21 27:24 30:3,4 36:4,19,20 41:17,20 42:21 42:22 45:2,11 45:11 46:7,8 46:21,22 49:18 51:14 54:1,2 55:22,23 56:10 56:11,24 57:13 58:6,14 59:7 59:16 60:3,14 60:15 73:18 76:16,17,23,24 77:7,9,10,13,18 81:23 83:6 88:9 92:17 93:8,11 94:2 96:5,6 100:13 101:1,20
---	--	---	--

102:19,21	192:23 217:8	268:3 285:10	recently 261:19
105:19,20	270:24 275:24	310:7 358:11	271:13 342:20
172:4 185:17	reads 345:23	358:16 360:5	recess 68:21
187:10,11,15	ready 327:6	376:24 377:14	131:20 220:9
187:16 189:18	382:15 407:11	377:22	234:14 245:15
189:19,20	real 216:20,20	reasonable	287:15 289:17
190:1,9 191:10	realize 105:21	74:4 228:20	344:8 392:15
192:5,24 193:1	realized 237:16	reasonably	397:15 409:13
193:9 195:5	really 24:23	83:7 284:12	recognition
200:7 204:1,4	29:12 33:7	285:5 324:1	223:5,6
205:13 207:3,7	38:18 52:13	reasoning	recognize
208:3 247:14	62:22,24 73:20	384:10	18:17 89:3,4
263:5 264:10	74:10 85:12	reasons 103:24	89:16 90:2,4
264:11 265:11	115:8 122:18	252:22 313:17	199:11,17
272:10,21	137:12 204:9	recall 29:2	recognized
279:1 280:12	223:18 265:22	37:17 85:21	99:5,6 222:15
294:23 296:18	266:2,13 279:8	87:2 88:5	222:19 223:9
304:13,24	283:14 317:4	291:12	recollection
306:11 307:4	339:5 362:12	receive 30:7,16	78:3
310:14 311:21	380:21 409:24	129:5 205:1	recommend
313:14 314:18	realms 187:2	206:8 229:11	78:24 80:8
316:13 320:24	realtime 2:21	262:17	recommenda...
330:15 336:8	413:21	received 29:15	22:14 27:18,21
342:4,22,23	reason 29:6	29:18 31:21	recommending
343:15,18,23	34:23 47:9	34:1 36:1	28:23
347:14 349:20	50:18 53:8	106:11 135:19	reconfirms
350:14 358:17	60:20 61:2,4	205:19 206:21	287:23
406:7,13 412:5	64:13 69:21,23	260:15	record 7:21
412:7	84:22,23 96:15	receives 105:12	12:8 13:11
reading 77:2	97:3 103:4	109:17	14:1,2 17:8,9
81:2 113:22	108:7,17	recent 91:17,17	41:20 44:3
145:16 148:4	120:19 129:22	92:14,18 105:4	50:11 53:4
149:1,2 158:9	181:3 204:3	404:3	68:7,20,24
180:15 191:15	236:11 258:6		77:10 83:18

101:18 131:19 131:23 132:1,4 134:1 199:20 205:13 220:4,7 221:9 234:1,8 234:11,13,17 245:7,12,14,17 248:4 287:14 287:17 289:13 289:16,21 344:3,7,16,18 359:19 366:6,9 373:20 374:11 382:12 392:12 392:14,17,18 397:11,14,17 409:10,12,15 410:4,6,22 recorded 1:13 2:11 records 17:23 107:24 recruited 56:19 reduced 319:14 319:20 reduces 317:12 reference 18:10 135:10 referenced 135:16 references 356:17 357:7 referencing 87:14	referred 27:7 referring 111:4 262:10 280:17 292:20 340:23 347:5 373:1 391:7 reflect 152:21 154:1,23 279:9 316:4 reflection 250:8 reflects 151:16 154:22 refute 311:14 312:5 regard 19:12 134:2 196:14 223:13 244:19 255:23 262:24 263:8 274:16 287:20 290:22 306:2 312:23 313:2 314:18 320:4 331:16 402:9 regarding 16:18 18:24 25:19 101:5 138:22 158:7 186:6 199:7 317:5 340:23 360:15 regardless 110:13 278:1	register 264:2 registered 2:22 413:4 registry 354:9 regular 113:15 181:24 183:7 regulations 56:7 57:23 59:5 regulatory 16:22 55:20 reid 152:18 153:2,3,12,14 154:16 rejected 16:23 35:6 44:10 78:16 79:1 83:14 86:9,19 133:17 270:11 rejecting 80:9 relate 187:8 related 27:22 31:22 37:14 66:24 67:10 69:17 161:6,7 207:15 306:4 325:8 332:19 333:10 361:17 385:18 398:7 relates 1:9 relating 30:23 48:21 51:22 136:15 192:2 239:5 277:21	344:21 354:20 relationship 61:11 181:19 295:4 298:9,19 299:17,19 300:12 301:10 304:5,9,10 311:1,14,20 312:5,11 313:19 314:19 317:15 332:6 351:11 relative 337:22 413:13,15 relatively 261:19 relevance 39:14 311:15 312:6,12 313:2 313:12 319:12 relevancy 213:20 relevant 22:5 40:2,16 42:1 157:10,23 158:4,17 188:15 191:11 213:18,23 313:17 reliable 46:19 47:5,17 48:16 reliance 261:1 387:13
--	--	--	---

relied 209:20 210:4,6 260:17 266:5	261:24 262:7 262:16,21,23 263:4 268:1 296:5 297:21 307:20 358:19 393:10	156:23 157:24 175:11 209:19 210:15,17 213:3,3 214:22 215:6,7,20 216:16 223:24 225:3,6 226:3 227:20 230:23 231:16 232:2 236:8 237:3,19 238:12 240:15 241:1,7,24 242:14 243:19 248:14,19 249:10,19 251:4,12,24 252:15,15 253:8,15,20,23 255:2,2,3,15 256:2,5 262:13 262:18,23 263:7,11 270:14 299:6 311:1 320:9 321:5 326:24 345:7,10,15,20 346:3,6 347:7 347:8,13,19,21 348:2,12 349:21 352:4 354:5 355:5,11 356:23 358:9 360:11,18 361:11 362:6	362:15 363:9 363:11,13,23 364:8,14 365:23 366:10 367:14,22 368:7,11,13,15 368:18 372:14 373:18,22 374:2,6,8 375:10 377:7 378:15 379:18 380:3,21 383:17 389:12 398:19 400:2 reported 1:23 306:5,20 308:8 309:23 326:3 338:11 360:10 366:11 367:12 367:23 368:3 372:16 375:14 reporter 2:21 2:22 13:12 41:20 77:10 87:23 104:2 178:22 205:13 244:24 271:3 278:17 288:8 293:11 321:8 330:2,9 343:6 343:11 357:9 369:5 413:1,4 413:21
rely 318:14	renal 11:1,5,13 11:16 357:21 358:1 365:18		
relying 212:17 260:16	rendition 19:19 150:21		
remains 407:22	renowned 22:5		
remarkably 29:24	rent 143:9		
remember 24:23 39:24 43:13,16,18 60:17 61:1,18 62:2,8,14 64:17 69:19 70:17 74:9,10 75:5,12 77:6 78:11,20,21 79:19,23 80:10 84:21 101:9 107:12 114:14 114:16 130:8 134:21 136:18 139:4,10,21 163:8,11 164:17 176:5,8 177:1 179:23 180:19 181:16 181:17 200:11 206:11 209:8,9 226:10,15 227:3,14 230:6 232:15,16 236:21 261:17	rented 7:11 46:13 48:11 87:8 93:19 100:3 repeat 77:7 303:17 333:4 368:1 repeated 101:2 368:3 repeatedly 191:15 rephrase 110:24 report 6:9,12 6:15,18,21 17:13,14,16,18 17:20 126:15 133:8 146:5,8 146:9,16,24 147:17 151:9 151:13,21		

<p>reporter's 15:9 reporting 182:8,16 reports 37:9 42:3 104:2 115:18 116:13 116:22 117:5 117:16 122:1 149:18 150:14 152:7 205:23 206:10,16,17 206:20 207:1,4 207:7 210:8 211:5 213:4,12 215:23,23 216:1 217:17 217:24 219:6 219:11 223:23 230:9,14 235:5 246:9 256:23 257:4,10 258:4 261:12 262:4 262:12 263:3,4 268:20,24 355:7,10 356:2 377:6 379:16 384:10 386:22 401:3 406:8,17 407:10 represent 76:2 82:7 109:23 354:6 378:20 representatives 178:14</p>	<p>represented 105:17 representing 3:2,16 4:3,15 5:3 14:2 160:14 164:8 represents 80:1 reproducible 16:5 reproductive 99:11 request 7:3 70:23 106:19 107:6,12 108:1 135:5,9 142:17 200:22 403:21 404:1 requested 106:22 259:15 259:19 260:8 requester 107:4 requests 260:4 required 108:3 125:11 requirement 129:2 410:11 requirements 25:11 123:17 182:8,16 research 36:2 45:10,13 46:14 71:3 87:4 95:12 97:6</p>	<p>102:12 105:11 109:16 145:9 145:13 146:1 146:11,15,21 146:23 147:13 150:18,19 151:9,11 164:21 201:21 213:17 274:21 294:1,2 307:19 407:1,12 researchers 53:16 57:5,10 residence 388:16 residents 388:17 residing 389:4 resource 102:5 102:9 103:3,5 respect 42:18 48:2 197:19 217:3 281:21 322:24 386:19 respected 26:19 respectfully 143:13 180:24 229:18 respiratory 296:15,20,21 316:7 responded 292:4</p>	<p>responding 8:20 response 53:19 99:9 235:17 370:6,11,23 371:6,21 376:18 responses 92:9 responsive 107:24 261:21 restrict 101:6 102:1 result 136:3 146:16 169:10 207:8 208:12 270:1,3,7 355:19 363:9 365:8,23 367:8 367:16 376:11 378:6,15,23 resulted 264:17 265:13 results 11:6 52:2,4 57:4,11 191:20 214:5 269:5 270:6 275:19 280:14 305:24 313:12 329:24 359:7 361:24 362:1,3 364:20,21 365:1 368:1 369:16 372:15 374:3,8 375:1</p>
---	--	---	---

<p>375:20 376:16 383:4 398:11 398:15,20,22 399:1,15 retained 159:6 159:14 160:6,8 162:15,19 164:6,9 201:4 retired 90:8 97:3 retrospective 8:18 10:11,22 retrospectively 395:17 revenue 124:7 124:18,22 125:17 140:7 140:10 143:7 review 7:8,9 9:19 19:1,2 20:16 21:11 27:21 29:17,23 30:23 31:6 35:12 42:20 72:24 80:4,21 81:14 85:17 93:6 95:22 99:20 148:24 149:6,14,17,21 149:21,23 166:13 186:4 187:3,23 190:12 192:14 192:18 194:3</p>	<p>205:22 207:21 211:10 212:7 214:2,13 232:1 234:20 249:24 261:6 263:2 264:13 292:15 292:21 307:23 359:24 377:23 reviewed 30:11 53:10 54:21 136:1 149:11 216:13 237:13 262:6 263:3 266:14 293:24 294:3 295:9,9 378:5 reviewer 79:22 80:19 81:6,12 82:20 reviewers 7:7 8:20 30:11 77:23 78:8,15 78:23 90:13 reviewing 25:8 145:22 186:6 186:10 190:13 249:8 262:23 359:23 407:9 reviews 38:21 83:13 84:5 89:17 98:12 119:20,23 149:12 150:1,3 179:10 180:17</p>	<p>181:13 210:22 214:10 228:18 232:4 233:2,16 233:22 234:7 239:6 243:1 245:5 246:24 247:16 248:1 252:6 255:17 259:5 275:14 276:21 279:5 281:15,18 283:8 288:13 304:16 320:4 321:3,23 322:5 325:2 326:11 327:11 330:14 331:2,19 333:3 334:13 337:1,9 337:18 340:2 342:6 343:17 346:10,21 357:2 358:14 359:9,17 365:13 366:3 368:21 369:1 369:19 370:2 373:4,12,19 374:10 375:7 382:10 383:18 388:12 397:9 rhode 202:8 rhombert 53:18</p>	<p>ri 3:9 ridge 4:8 ridiculous 53:23 right 14:5,21 15:8 18:6 19:8 22:12 23:3 34:18,19,22 35:4 38:9 39:23 42:6 43:20,21 50:9 54:5 55:5 57:1 58:15 69:4 70:19 71:12 72:8 73:15 80:13,14 84:12 86:5 89:22 91:10,14,19,22 93:14 99:6,8 99:15,22 108:14,19 115:13 117:17 119:16 120:16 120:20,23 121:9,22 125:7 128:20 129:3,6 129:7 130:17 132:13 137:23 138:20 143:15 143:19 144:18 145:3,6 146:1 146:5,19 153:5 156:7 157:16 157:19 158:1</p>
--	--	---	--

161:8 162:7	288:15 292:8	81:15 82:8	209:13
164:18 165:22	296:2 299:22	114:4 168:1	roles 227:3,4
166:3,22 167:3	301:22 302:3	186:3 239:17	roman 118:17
168:6,23	302:17,20	264:18 265:14	rosenfeld 261:4
170:22 171:7	304:22 305:5	266:5 271:24	262:3 268:21
171:17 172:20	305:13 306:13	272:7,16 273:1	route 278:1
172:22 173:1	307:16 310:21	275:21 276:12	routes 275:13
174:14 176:8	311:9 315:20	282:2,2 283:4	276:13,18
177:3 180:20	319:4,11,12	291:3 317:5	277:9,12,18
181:7 182:13	320:7 321:19	327:22 328:4	278:10,14
187:9 192:18	346:14 347:23	328:14 342:18	282:4,10 283:5
193:1,3,10	349:24 350:5	346:17 347:3,4	287:24 323:6
194:7 195:6	350:22 353:14	347:9,12	row 3:8
200:4,5 201:9	355:22 361:4	348:21 350:15	rpr 413:21
202:10 212:5	362:21 372:6	359:2 360:10	rule 269:7
213:5 217:14	373:9 375:2,13	362:13,14,16	310:18,19
225:12,15	388:18 389:24	363:13 366:11	314:24 315:1
229:2 234:10	393:16,19	368:6 381:22	339:15
235:8,19 236:3	395:7 399:17	383:20 400:13	ruled 304:6
237:23 238:2	400:11 402:20	risks 11:1 30:9	305:4
238:24 239:4	403:23 404:5,6	199:7 264:21	rules 57:24
239:21 243:10	408:10 410:9	320:14 322:14	58:12,16
243:18 244:7	rigor 52:1	337:23 360:15	ruling 113:17
244:15 246:7	rigorous 37:10	386:18	ruzicka 5:23
246:14 247:8	149:23	rlee 4:12	s
247:21 249:17	rise 58:4	rmr 1:23	s 12:1 19:3
250:15 252:11	risk 6:9,18,21	413:21	139:5
252:23 257:7	9:1 10:3 11:4,8	roberts 5:23	saal 51:10 53:1
266:10 268:2,3	19:22 20:3,15	robin 153:6	53:15,22
268:15 269:16	20:18 21:11,14	robust 25:16	sacc 7:8 29:23
272:17 273:19	22:6 27:22	280:23	30:23 31:5
273:24 276:19	34:16 42:19	rodents 313:11	35:12
279:2,19	70:16 75:2	role 26:7 58:24	
280:15 286:5	76:3 80:6	73:12 152:22	

safe 7:22 46:20 47:6,18,21 48:16,22 49:1 70:2,4 101:19 131:6	110:10 130:22 144:8 146:22 151:12 153:2 166:1,2 170:1 170:3,15 172:16,17 174:3,16,21 182:15,19 192:23 193:5 193:21 194:16 208:5 210:10 215:6 218:8 232:21 233:3,7 233:8 235:12 235:20 244:6 248:19 250:3 250:20,23 257:2 263:21 272:15,20,22 272:24 273:4,6 273:13,14,20 280:21,22 282:16 283:14 285:4 292:14 298:23 299:7 300:2,4,8,13,16 302:3,8,12,16 302:18 304:19 313:24 316:14 322:11 326:12 328:24 329:11 330:18 333:11 346:23,24 347:11 350:14	351:4,24 352:1 355:12 374:15 379:11 380:24 384:1 385:1 389:1 390:3,9 400:17,22,24 401:1 410:2,3 says 19:20 20:13,23,24 22:1,10,11 23:15 27:13 29:3,13 35:19 36:8 39:16 42:12 46:11,13 47:22 51:3,9 53:12 55:12,13 56:4,12 57:3 57:21 58:8,22 59:8 60:6 61:7 67:5 88:13 91:16,24 92:11 92:12,13 93:4 93:14,21 94:4 95:16 98:21 99:17,24 100:8 101:17,22 102:8,10 104:1 105:3,8 106:11 107:4,7 109:13 109:18 110:17 110:18 112:8 112:23 119:18 120:6,9,12 125:6 143:14	144:23 145:8 145:24 150:18 153:6,12 172:2 173:14 179:12 189:14 199:6 201:15,20 215:12 231:4 231:11,21 233:5 238:3,7 238:18 240:21 241:3,10,11,15 242:2,17 243:7 243:13,16 244:3,9 247:1 247:6 251:10 251:16 253:15 253:21 254:7 255:10 256:5 267:20 270:18 271:10,12 272:5 279:3,17 280:3,8,23 294:24 296:14 298:5,13,14 300:9 303:22 303:23 304:12 305:23 306:13 306:17 311:11 311:16 312:21 315:22 316:12 319:12 321:20 327:20 341:7 345:17 346:3,6 347:4,6,7,8
---	---	--	--

348:17 349:7 350:23 353:4 353:11 375:24 380:24 382:3 388:13 394:7 394:16 403:12 404:16,19 sc 4:9 scale 127:12 scenario 274:9 295:20 schedule 171:12 258:15 258:17 259:11 260:9 261:21 267:21 402:9 403:1 scheme 287:2,2 school 56:9 97:9 189:8 201:17 202:5,6 science 15:23 28:14 30:13 38:16,23 54:24 65:14 67:5 71:20 93:5,18 93:24 94:3 95:8,19 96:12 99:19 100:6 104:7,8,15 106:7 145:15 149:24 187:3 187:14,24 190:14 193:17	193:19 223:8 378:10,20 379:7 sciences 19:22 20:3 114:4 187:1 281:20 scientific 34:14 36:17 37:3,13 37:24 38:5 44:6 46:2 50:5 52:1 54:11 56:6 62:20 63:3 64:2 71:6 72:3 74:2 79:2 93:5 94:13 95:17 96:2 99:9,19 100:11 113:4 114:7 133:23 134:16 147:23 148:4 148:21,23 149:6 193:16 204:7 207:22 228:20 264:7,9 266:3 scientifically 208:22 264:14 scientist 8:2 15:17,19 16:1 16:8 36:10 61:10 65:24 66:16 72:2 84:7 109:1 152:17,20	153:1,4,13,15 154:17 177:9 scientists 15:21 26:11,11 46:17 48:24 56:8,14 56:19 57:7 58:24 71:11 94:12 100:10 102:17 111:6 154:10 sclerosis 340:19 341:11 scope 116:3 156:15 157:1 158:5,23 171:11 213:11 224:3 score 393:23 scored 391:1,10 scores 394:7 se 94:7 search 157:6,8 158:14 searches 157:4 157:10 203:2 second 47:11 51:2,9 55:12 79:3 111:16 136:23 162:22 226:24 233:1 276:3 296:8,9 305:22 311:10 345:17 348:16 352:8 353:3	357:15 372:14 375:19 392:12 393:18,19 397:11 402:4 secondary 246:6 seconds 366:8 409:10 section 40:23 75:21 150:13 210:23 211:5 235:5 246:9 249:18 255:16 303:20 304:18 305:17 345:19 356:24 357:16 368:13,15 369:12 372:13 373:3,18,22,23 374:2 381:10 381:20,23 382:2 394:22 sections 237:3 see 50:19 51:7 52:15 61:14,15 69:4 71:12,14 71:20 73:19,23 74:13 88:12 90:24 91:16 95:12 96:21 98:14 100:12 101:16,22 102:19 105:2 112:14,15
---	--	--	--

113:5,6 115:21 119:19 120:2 130:5 136:4 144:22 145:8 162:19 172:14 172:15 200:7 207:8 216:14 218:8 226:12 231:3,9,19 235:11 237:23 238:2,7,9,18 240:20 241:3 241:14,20,23 242:1,17 244:1 244:1,1 251:7 251:14 254:6 254:11,13 255:9 262:22 267:20 271:9 272:1,2 290:4 305:19 321:6 332:21 337:10 337:13,21 357:7 361:12 365:6,18 366:22 367:4 369:20,22 370:3,4 374:12 375:11 376:6 392:3 393:20 401:3,10 402:16 403:4 403:11 404:16 408:11	seeing 88:5 247:10 328:6 seek 15:21 seems 61:12 167:5 seen 88:3 89:13 102:11 103:15 113:9,19 118:2 118:6 142:2 206:14 259:3 268:5 291:11 326:17 391:15 401:21 selected 199:5 selection 7:6 270:5 sell 136:13 selling 112:12 semester 202:17,21 send 86:4 108:18 134:19 142:17 172:7,9 172:11,12,13 sending 85:22 121:8,20 174:13 sense 79:3 193:17 333:24 sensitivity 367:6,17 368:6 sent 73:4,9,11 85:4,7,10,16,18 106:19 107:14	107:19 124:3 152:23 153:11 153:19 155:1,8 155:8 sentence 20:13 21:22 22:1,9 22:11 27:12 29:13 36:8 39:15 42:11 46:9,24 47:10 49:18 51:9 53:12 59:8 83:6,11 93:14 93:21 94:4 106:10 244:2 256:11 272:11 276:15 277:6 279:4,7,16,24 280:6,8,11,18 290:4,6 294:23 301:15 304:24 326:19 330:13 330:15 332:23 333:4,11 336:7 339:9 342:9 345:17,23 347:6 348:16 352:8 353:3 sentences 76:15 76:17,23 81:9 95:16 180:9 278:24 301:16 347:14	sentiment 100:22 102:23 410:13 separate 132:18 146:12 147:3 150:17 158:13 161:15 162:16 164:11 224:17 259:18 261:22 367:11 separately 135:6,12 367:24 september 8:5 62:2,9,14 116:6 179:3 181:11 404:3 series 7:13 88:14,20 93:18 100:2 serious 340:24 served 32:8 services 403:1 serving 388:16 session 6:4 221:1 set 13:23 56:15 123:19 124:3,7 124:7,18 259:1 413:10 sets 364:7 setting 30:15 384:14
--	--	---	--

<p>seven 17:11 41:11 48:4 160:3 409:19 410:1,8 several 23:17 55:2 74:23 91:8 92:1,10 93:15 124:23 127:2 129:24 173:10,21 174:8 177:24 217:24 226:18 260:14 263:4 297:18 304:5 305:2 316:1 329:19 340:16 341:8 356:1 382:20 384:13 severity 9:11 293:20 294:16 294:17 295:6 295:24 297:8 298:11 301:11 304:3 306:9 307:2,11 308:12 316:1 sewer 138:15 139:9,11 164:2 sex 242:18 243:8,8 sgriffin 3:13 shannon 3:6 13:3</p>	<p>share 57:8 shares 175:22 176:14,15,16 sharon 5:10 sharon.sprayr... 5:18 sheet 411:1 412:11 shift 18:7 shocked 31:20 short 9:10 285:8 293:19 294:15,17 295:5,23 296:15,19 298:10 301:10 304:2 306:8 315:24 323:1 show 59:22 81:21 168:4 199:14 207:23 212:8 270:23 288:4 289:1 292:13 325:14 336:11 365:4 showed 39:21 54:16 157:6 337:22 showing 39:12 46:15 102:15 293:16 347:12 shown 113:2 shows 370:23 372:1</p>	<p>side 20:9 237:24 238:2 271:9 279:3 296:9 306:13 311:9 312:20 315:21 319:11 349:6 357:17 373:14 393:19 sided 119:22 254:3 sign 97:5 signature 410:23 413:20 signed 94:17 95:11 412:15 significance 8:22 269:4,11 269:19 271:17 271:18 350:24 351:5 409:22 significant 42:17 78:17 122:8 269:6,6 269:23 270:12 272:23 273:3 273:17 274:3 306:6,22 307:8 308:9,20 309:12 310:1 311:3 326:4 348:20 350:15 350:21 353:12 353:16 359:3,7 360:7 361:23</p>	<p>361:24 362:4,5 362:17,20 363:3,5,7,15,24 364:21 365:1 365:23 367:8 367:13,16 368:5,9 369:16 372:2,4,7,11,17 374:3,8 375:1 375:15 376:11 376:16 396:22 signing 94:21 silbergeld 89:18 silverstein 5:9 similar 51:19 52:3,6,17 57:11 70:20 127:13 144:13 211:14 366:12 368:1 simon 46:13 49:24 simply 63:2 270:11 317:7 single 97:13 150:15 202:16 207:14 208:6,8 208:23 215:22 228:12 229:5 257:14 355:4 384:4,17 394:20</p>
--	--	---	---

sir 365:19	160:3	242:22 246:21	sorry 27:2 31:3
sirs 357:21	skipping 95:15	247:7,11,14	41:19 57:18
sit 29:8 44:11	slightly 246:10	248:9,12,17	60:11 66:21
61:18 62:16	slip 219:6	249:3,12,15	74:21 77:6
87:2 96:16	slipped 219:13	250:21 385:15	111:16 112:1
97:4 130:8	slipping 230:4	385:17,19	120:3 123:13
131:10 136:7	small 50:20	398:6,7	151:6 157:21
137:5 141:20	74:15 86:12	sneeze 219:3	161:24 163:17
144:6 156:5	140:2 141:6	snidow 3:18	179:11 180:14
203:3 206:12	143:5,10,16	13:1,1 60:6,10	202:5 205:12
209:9 232:15	306:20 307:7	snydow 116:23	211:4 219:19
263:23 266:15	308:8,17,19	128:5	221:23 222:8
266:16 292:23	309:11,24	society 57:8	239:9,13
293:4 302:7,24	310:16 311:2	59:12	240:16 243:2
383:15 397:3	376:23 378:6	sole 185:13	251:13 253:22
405:21,24	smog 56:22	solicitation	253:23 255:6
406:16 408:7,9	58:1	11:19	270:23 288:16
408:18,22	smoke 74:21,22	solvent 136:18	311:20 325:13
site 10:3 183:6	76:6 82:11,24	solvents 8:11	325:22 326:9
183:7 342:18	smoked 72:20	382:18	331:13 349:19
387:16	smokers 112:13	somebody 35:8	357:3 358:2
sitting 117:16	smoking 34:15	48:7,13 81:2	359:20 360:3
147:6 195:22	65:19 70:15	190:9,11 216:5	369:20 372:24
201:8 207:4	71:7 72:14	225:14 236:5	373:23 392:18
222:21 302:6	73:21 75:2	249:1,3,10	sort 26:13 72:1
401:5	77:4 78:10	308:23 309:10	147:2 235:23
situation 23:20	79:10,14 81:4	313:15	250:5
301:21 317:9	81:18 83:8	somebody's	soskolne 7:18
356:11 395:17	113:14,14	67:8	96:16
situations 40:5	133:15,18	someone's	sought 149:3
398:19	231:12,22	67:23 68:12	316:15
six 56:20 57:4	232:22,23	soot 56:21	sound 70:19
59:22 60:1,21	235:15,16	57:11 58:1	115:12 116:1
60:24 124:4	237:6,15 242:4	59:23	155:19 156:7

165:22 167:3 171:6 404:5,6 sounds 75:15 170:15 220:3 283:12 297:22 374:20 source 205:20 388:20 southern 1:3 12:19 speak 53:7 60:19 103:7 125:15 218:7 263:16 265:16 speakers 108:3 speaking 196:24 218:6 281:3 394:5 speaks 64:14 species 325:6 specific 9:16 10:3 11:5 25:19,20 62:14 67:6,22 76:1 82:6 91:18 92:2,18 105:1 158:7 169:9 193:7 194:11 200:12 221:17 223:8,8 315:23 318:5,16 320:5 342:18 356:20 362:14 368:11 382:24 387:16	specifically 45:7 218:23 249:9 256:2 329:19 347:5 350:23 360:14 360:16 361:2 specifics 191:7 305:15 specifying 346:11 speculate 236:15 258:8 406:21 speed 199:21 233:19 spelled 357:5 spend 193:14 203:6 248:7 250:18 spending 236:18 spent 24:22 30:19 156:10 156:18,18,21 156:21 407:20 spiliotopolou... 211:10 split 226:21 spoke 104:5,22 106:13 sprayregen 5:10 spreading 50:21	stab 216:13 stack 115:18 staff 65:7 156:19,21 158:20 213:16 213:21 214:2 215:21 227:7,9 staffers 157:9 stamped 17:23 stand 140:16 142:22 standard 24:16 27:8 171:14 205:2,9,20,23 206:5,9,18,22 295:13 314:20 351:10,11 stands 136:21 139:4,14 349:15 start 320:7 404:2 started 17:6,11 202:21 362:23 407:12 starting 19:20 189:7 222:6 380:1 starts 259:10 259:16 state 26:14 64:11 95:8,19 111:19 149:24 190:13 193:17	193:18 284:16 285:6 328:2,21 372:14 378:10 378:20 stated 78:23 81:12 98:1 240:7 256:7 285:15 287:21 323:4 327:24 328:21 334:10 342:9 354:4 370:14 statement 7:13 7:16 47:23 53:13 57:15 75:15 82:15 88:13,20 92:4 92:10 94:8,20 94:21 95:5,8 98:21 172:1,2 196:22 250:24 267:20 268:8 276:10 292:12 304:15 314:17 315:3,8,13 322:16 323:22 324:6 328:12 328:16 329:6,9 335:7,16 336:3 336:19 338:4 341:5,7,20 342:5 347:3 349:20 351:19 383:10
---	---	--	---

<p>statements 38:1 53:20 54:14,16 55:4 55:6 77:18 79:3,5 83:21 83:24 95:7 100:22 111:6 states 1:1 5:3 12:17 13:6,8 45:24 75:22 82:5 90:7 116:7,12 117:6 122:14 125:23 127:8 135:15 203:15,18 332:3 350:8 353:22 354:2 391:9 410:14 stationed 240:9 256:10 statistic 165:23 269:10 349:22 statistical 8:21 112:20 249:22 269:4,11,18 338:12 350:24 351:5,7 396:17 396:20 statistically 79:17 269:23 270:11 271:21 272:23 273:2 273:16 274:3 306:6,21 307:7</p>	<p>308:9,20 309:12 310:1 311:3 326:4 348:20 350:15 350:21 353:12 353:15 359:3,7 360:7 361:24 362:4,5,17,19 363:3,5,7 364:21,24 365:22 367:7 367:13,15 368:5,9 369:16 371:9 372:2,3 372:4,7,11,17 374:3,7 375:1 375:15 376:11 376:15 statistics 363:2 398:9 statute 204:1,4 204:10 208:12 209:13 stay 156:20 stenographic 13:10 stenographic... 413:9 step 289:12 310:9 steven 262:20 262:24 stock 175:23 176:1,3</p>	<p>stopwatch 132:1 stoves 8:1 103:20 104:13 104:13 106:7 strange 154:21 stratified 364:7 street 2:16 4:8 4:18 5:11 12:14 190:9 strength 231:11 232:6 232:11,20 235:9,18 236:20 237:7,8 237:14 238:8 241:17 244:6 246:14,16,19 247:23 248:12 249:4,13,19,23 250:3,5,15,22 295:4 298:8,18 301:9 306:14 307:16 308:1,6 308:10 309:17 309:22 316:10 316:17 317:12 318:6,18 319:13,19 386:7 strengths 235:14 238:3 240:20 241:15 242:2,18</p>	<p>243:11 247:1 253:14 383:2 393:3 394:12 394:14,21 395:1,4 stretch 83:10 strike 34:6 35:3 38:9 44:8 61:23 71:13 73:24 74:22 75:24 78:12 80:1,16 81:11 86:22 114:19 118:23 127:22 128:17 140:14 148:2 153:9 154:8 160:5,12 160:17 163:16 173:13 174:20 177:11 180:1 180:22 183:19 188:22 193:22 207:1,3 208:3 208:7 209:1 210:5,11,15 217:15 238:22 259:9 264:24 283:1 294:10 294:16 308:17 356:22 377:19 386:5 387:4 389:20 390:24 stringent 25:11 25:16 351:8</p>
--	---	--	---

391:24 393:10 394:2,4,11,17 394:18 395:19 396:14 397:5 397:21 398:9,9 399:14 401:17 studying 166:7 167:1 stuff 54:17 137:11 143:10 156:24 268:23 339:24 subdisciplines 198:2,16 subgroup 349:9 subject 59:5 80:8,18 submission 83:16 submit 65:14 73:15 107:6 108:9,13 submitted 7:10 19:12 29:22 30:22 31:5 43:19 77:21 78:16 82:15 83:13 85:8 86:9,13 106:21 108:2 110:7 271:14 submitting 172:14	subspecialty 197:23 198:5 198:20 199:1 substance 263:6 265:10 284:21 322:10 substances 46:4 82:23 83:1 354:9 substantial 300:9 substantive 250:13 subsumed 145:11 suddenly 101:3 396:22 sued 160:14 suffer 265:19 sufficient 75:10 76:2 77:15 82:7 240:11 284:13 290:23 291:18 292:2 293:3 299:16 299:18 304:8 304:10 316:2 320:17 324:15 324:16 327:9 331:17 332:5 332:10 333:17 334:1,4,6,11,15 335:19 336:5 336:23	sufficiently 304:4 305:1 suggest 327:21 328:3,12 suggesting 306:7 suggestive 283:7,12 284:5 304:1 328:1,8 suggests 401:9 suite 3:20 4:18 sum 207:8 393:20 summaries 145:22 summarize 268:15 summarized 214:10,11 summary 164:5 superior 113:2 supplement 248:3 supplemental 262:18 supplier 403:1 supplies 387:12 403:1 supply 19:24 20:6 support 29:22 30:2,17 31:9 31:17 32:1 35:11 55:4	71:7,15 74:18 75:10 77:16 81:22 92:3 274:7,14 276:23 282:24 286:23 311:17 311:19,19,24 312:4 328:22 329:5,13 341:1 341:15 379:4 supported 16:19 28:14 71:21 79:4 104:15 204:7 206:2 370:10 supporting 18:23 32:17,23 65:19 95:4,6 96:3 272:14 320:16 322:8 322:12 323:2 supportive 273:1 274:9 283:15 299:9 299:10 supports 60:1 61:17 272:15 371:21 supposed 147:14,18 suppressor 75:1 sure 16:4 18:8 41:12 68:18
---	--	---	--

77:8 106:16 111:14 113:16 114:1,15 115:24 117:1 126:13 127:16 129:16 130:24 131:7,17 133:19 136:16 139:9 140:8,8 141:8,13 144:10 158:14 158:16 166:17 167:12 168:18 170:22 171:2,5 171:8 178:18 180:11,12 182:4 193:5 196:23 201:1 203:11 217:8 222:24 223:11 229:16 233:12 234:9 242:15 246:11 252:7 252:21 256:21 287:10 288:7 289:5 309:19 333:6 345:5 347:4 353:1 361:1 365:15 369:10 391:6 398:1 402:21 surface 313:9 surprise 74:16 75:20 76:9	106:18,24 122:20,24 surprised 119:4 219:13 392:2 surprising 184:1 susceptible 296:17,23 suspect 80:6 sutton 8:6 179:6 swear 13:13 sweden 11:2 sworn 13:17 221:5 413:6 symptoms 306:3 syndrome 332:13 synthesis 201:22 system 219:4 226:14,18 272:19 388:16 systematic 7:9 19:2 20:16 21:11 25:7,23 26:2 42:19 80:24 148:24 149:6,13,16,21 149:23 166:13 186:4 190:12 192:13 214:13	214:13 307:23 systematically 186:6 187:13 191:18 t t 19:3 218:14 t.h. 201:17 table 53:19 249:8 252:13 253:1 360:13 374:16,19 377:3,17 tables 145:22 145:23 214:3,7 217:9 248:3 249:7 368:13 368:16 tabuchi 8:3 take 15:1,4 31:23 63:21 67:18 68:16 81:16 96:11 117:12 131:15 158:2 168:2 174:17 193:5 219:24 230:12 230:18,22 231:15 234:3 235:8,17 240:14,24 245:8 251:3 252:13 253:1,7 254:14 255:1	269:22 274:8 287:9,11 291:8 301:15 343:21 359:14 taken 58:24 68:21 131:20 195:10 216:13 220:9 234:14 245:15 263:21 287:15 289:17 295:1 306:22 344:8 392:15 397:15 409:13 412:6 413:9 takes 24:20 talk 15:9 115:7 162:23 164:14 179:22 180:10 185:23 195:22 196:15 211:6,9 225:4,22 236:1 236:2 310:6 talked 28:12 64:15 97:17 99:2 133:24 159:2 164:21 180:11 181:16 182:23 206:17 208:10 212:24 266:1,9 268:20 276:5 393:9 talking 69:22 87:8 100:16 113:17 127:15
---	--	---	---

130:1 140:12 142:13,19 166:18 169:16 172:20 177:19 178:1 184:7 197:12 211:12 215:5 222:21 238:5 239:20 241:21 244:12 244:14 246:2,3 246:8 247:17 250:13 253:10 253:13 256:2 260:20 261:21 279:16 281:3 326:8 348:13 362:17,18 365:5,8 380:9 380:17 381:1 387:7 406:19 409:22 target 325:7 task 204:16 tasked 204:6,11 204:14 tasks 147:2 224:3 taught 193:1 202:6 tax 215:21 tca 323:4,17 335:15 tce 136:14 137:2 178:1	183:18,21 184:7 199:9 201:5 211:20 262:19 263:1,8 263:17,22 264:1 265:4,24 275:12,22 276:12,17,24 277:1,24 281:4 281:21 320:15 320:17 321:17 322:8 323:8,18 324:9,14,21 334:12,21 335:8,16,20,22 336:6 339:21 340:10,17 341:10 346:1,1 346:15 356:24 360:15,15 361:18 364:17 367:1 368:24 372:23 373:2 tceq 129:18 173:6,8,20 297:14,16 teach 202:23 203:1,3 team 56:13 217:18,19 218:3,5 tease 383:8 ted 5:23	telan 4:5 tell 14:15 18:20 75:6 105:24 106:2 107:13 110:6 141:5 149:20 200:9 201:7 211:1 222:1 223:14 229:18 231:1 242:10 253:8 255:6 261:15 273:2 283:14 301:17 327:6 359:24 369:2 369:12 375:6 393:21 397:20 397:24 401:5 407:7 408:23 telling 118:23 tells 389:5 temporality 254:7 255:9,16 255:24 256:12 tend 285:22,23 tendency 219:6 230:4 tends 287:5 term 9:10 10:1 293:19 294:15 294:17 295:5 295:23 296:15 296:19 298:10 298:15 301:3 301:10 304:2	306:8 315:24 342:16 terminology 283:23,24 terms 25:16 26:6,9 51:21 62:19 77:24 86:24 94:3 113:11 124:3 124:15 130:21 134:5,15 138:17 154:11 154:18 157:6 158:23 166:22 174:23 185:1 191:23 192:18 194:2,2 195:21 195:23 197:5 197:14 204:20 205:20 206:5 209:13,17 210:13,15 212:1,13 213:2 223:24 227:17 228:4,4 232:1 235:5 240:4 241:8 246:2 252:11 257:1 263:7 265:2,9 265:21 268:23 269:4,5 270:21 272:19 273:6 277:18 284:4 310:13 319:9
--	---	--	---

334:3 374:2	118:24 119:3	343:12 345:4	53:7,9 62:22
376:10 383:3	120:22 128:19	365:12 369:8	62:23 63:4,14
389:23 391:20	141:21 152:6	393:14 410:17	63:14 67:3,13
395:19 403:8	160:9 177:11	410:19,20	69:3 72:12,16
409:23	177:22 196:7	thanks 289:14	72:17 74:2
territory	196:12 244:17	theoretically	76:10 77:12
116:19	247:13 265:9	82:24 83:2	80:19 83:7,10
test 370:9	413:9	thing 18:13	85:4 86:5,18
371:23	testing 8:22	24:18 96:9	86:20 88:21
testified 13:17	114:7 148:3,5	128:20 153:17	89:21 90:2
37:11 61:23	148:21,23	180:4 183:10	92:23,24 96:9
69:5,6 101:8	149:4 162:17	191:1,3 224:11	96:15 98:19
126:15 159:15	271:17 351:7	226:7 241:10	105:20 108:15
159:19 160:2	387:13	241:13 269:12	109:5,6 118:11
160:22 198:3	tests 147:23,24	324:9,22 385:5	119:5 121:2
221:5	tetrachloroet...	things 36:22,22	124:12 128:15
testify 62:1	9:20 282:3	37:23 123:4	131:6 134:19
101:4 102:1	284:12 285:16	124:20 146:4	135:18 136:5,8
105:14 106:6	325:7,17 328:4	192:22 210:9	136:24 137:21
109:21 164:9	328:9,13	219:6 233:19	139:13 142:3
268:18	329:18	236:7 242:22	143:20 146:13
testifying 64:20	texas 55:19	244:7,13	147:1,5,5
66:6 106:20	129:19 138:15	249:17 252:10	151:16,19,20
198:10	text 146:16	253:4 274:23	155:6 159:24
testimony 23:9	214:6 215:21	385:14 410:1	167:18 169:6,7
43:17 59:9,21	217:6,8 374:16	think 14:23	169:19 170:21
60:19 62:15	374:18 377:16	17:7 26:20	171:13,14
93:23 100:5	thank 21:24	27:4 28:5	173:5,9 175:13
106:10,23	45:20 60:12	31:13 33:16	178:15 179:20
107:6,7,7,13,15	68:14 101:14	35:8,9 37:5,20	180:22 181:11
107:18,20	103:13 111:13	37:22 39:18	192:20 198:14
108:1,2,16	200:1 233:15	41:22 43:8	201:8 205:16
110:7 112:10	245:19 258:23	44:11 47:7,24	206:15,23
112:22 118:1,8	271:2,7 289:11	48:17 52:12,14	212:6 219:3,4

223:6,10 225:3	365:8 370:17	thousands	133:14 137:17
229:19 232:6,6	377:19,21	69:16 127:19	144:15,21,22
232:14 234:4	378:4 380:7	three 33:15,22	145:2 147:7
235:21 237:1	381:5 386:10	43:22 66:2	150:16 155:15
237:11,12	386:13 389:22	106:5 110:17	155:23,24
242:8,9 243:7	394:6 396:8,14	115:14 120:21	156:18,20
244:5 247:17	396:15 397:4	130:20 160:7	160:13,22
248:20,22	397:24 410:15	162:18 163:10	162:22 163:7
249:6,11,14,20	thinking	163:13 193:15	163:13,14
249:24 250:5,8	163:19 248:8	278:9,9,14	164:8 165:5,8
251:22 257:21	thinks 351:10	280:18 376:1,2	165:15,19
258:18,19	third 45:23	376:7	166:6 167:7,14
261:3,19 262:5	161:15 163:7	threshold 28:9	168:8,15 170:2
262:11 264:6	163:13,14	70:10	202:8 203:6
266:17 276:22	345:16	throw 273:12	208:24 209:2,9
279:8 281:19	thirds 111:3	thyroid 349:10	209:11,12
282:12 283:11	330:12	tier 306:5 394:2	212:10,14
285:4 286:20	thomas 5:20	394:4 395:6,7	217:23 219:20
286:22 287:4	12:9	ties 42:14	219:22 220:6
288:21,23	thought 42:9	till 62:10 404:3	221:8 226:10
297:15 300:16	63:20 71:9	time 1:17 2:9	226:14 227:12
301:14 302:6	73:4,17 77:3	12:11 14:9,21	234:3,12,15,20
302:13,15,15	81:2,17,19	15:2 26:13	236:18 243:14
302:20,24	83:8 85:18	30:19 34:21	243:21 245:13
303:9 304:17	147:20 158:4	43:14 60:19	245:16 248:6,8
307:18 310:5	163:14 174:24	65:7 68:19,22	250:18 254:15
310:13 315:5	230:1 237:4,8	71:2 85:6,16	287:13,16
321:4 322:11	249:3 250:1	100:18 106:7,9	289:15,20
323:1,16 324:5	252:2,3 262:6	122:16,22	302:20 338:1
326:12,20	302:21 310:9	124:5,16 127:9	344:6,15
328:20 329:10	360:12 409:24	128:22 130:14	354:12 364:22
338:10 341:18	thousand	130:19,22	392:13,16
347:15,18	406:12	131:18,21	397:12,13,16
351:11,14		132:3,23	398:1 404:2,3

406:24 407:1,8 407:19 409:11 409:14,18,21 410:21 413:10 times 103:19,22 109:12 112:3 113:23 146:22 154:16 156:10 159:7,13 160:1 160:5,7 162:18 163:10 164:6 166:23 167:14 170:5 171:3,6 173:12 178:13 210:18 215:22 216:2 225:18 249:7 355:4,9 367:2 403:24 405:4 tiny 46:15 title 70:18 88:9 88:11 93:4,7 99:21 153:8 titled 152:13 266:20 titles 152:21,22 153:18,24 154:3 tobacco 74:20 80:5 81:14 82:23 111:19 112:12 today 14:8 43:9 62:10,16 96:16	97:4 115:7 130:8 137:5 141:20 177:20 178:1 184:7 185:23 195:22 196:15 206:12 214:23 266:16 292:23 293:4 302:7,24 408:7 408:22 today's 12:10 together 26:10 102:15 202:7 202:22 261:13 295:1 306:22 told 252:9,14 253:2 396:12 tombs 174:22 took 80:20,20 194:23 top 101:16 109:12 200:5 222:2 259:11 279:2 298:5,21 298:22 319:12 346:8 366:23 369:24 topic 47:20 193:19 topics 133:21 134:14 166:12 torts 5:5 total 69:19 106:5 120:15	120:20 127:24 141:6 145:2 159:22 403:13 404:20 406:11 totaled 173:9 173:23 totality 303:24 341:21 totally 165:23 totals 120:12 toward 125:16 398:15 towards 19:16 55:11 58:22 110:17 129:4 200:5 230:24 389:10,13,16 398:21,23 399:1,8,15 tox 185:15 toxic 7:12,22 93:20 100:4 101:18 135:21 354:8 toxicity 264:17 311:12 312:3 312:20 325:7 toxicological 9:19 186:24 toxicologists 226:19 toxicology 40:1 81:21 145:17 149:2 184:19	186:3,12,20,22 187:7,11 189:19 190:8 190:13 191:9 192:3,13 193:10 194:2 197:5,23 198:1 198:2,5,15,18 198:21,22 199:1,2 218:9 218:14,21 222:16 223:5 224:4 toy 160:14 161:2,9 162:2 162:6,8,15,18 164:9 track 7:21 101:18 122:4 207:11 407:12 408:20 409:8 tracked 57:9 tract 334:23 trade 20:17 21:12 22:22 32:16 36:10 42:15 167:23 training 186:9 187:23 191:9 194:1,5,11,17 194:23 transcript 6:7 8:4 412:5 413:8
--	--	--	--

transparent	36:6 37:21	108:5,6 109:2	190:24 191:2,4
16:5 25:24	38:6 39:3,15	110:1,14,15	191:5,11 194:4
80:23 105:10	40:5,11,12,17	114:21,22,24	194:12,18
109:7,15	42:7 43:10,23	115:1,20	197:5,9,23
149:23	44:24 45:13	118:14 120:17	201:18,22
treated 185:6	47:6 48:7 49:3	120:24 122:1,5	203:19 206:14
188:10 190:16	49:19 50:5,8	125:20 128:23	208:12 210:8
treatment	51:23 52:9,22	134:6,16	225:19 226:16
185:2 381:15	53:22 54:11,14	142:19 144:15	227:4 228:14
387:14	54:24 55:24	149:10,18	229:4,9,10
trend 370:9	56:10,23 57:12	150:15 152:4	230:10 231:13
371:23	57:15 58:5,13	152:15 153:10	232:24 239:5
trends 349:9	59:6 61:3	153:15,16	246:15 247:24
trial 112:11	62:10 63:8,23	154:12,19	248:13 251:10
159:15 160:2	64:8,11,21	155:2 158:5,11	253:18 254:16
409:7	65:1,20 66:4	158:19,24	257:23 258:4,9
trichloroethyl...	66:11 68:9,10	159:3,17,18,21	258:10 260:5
9:2 11:10	69:9,10,14	160:10,19,23	263:8 267:13
322:17 335:20	70:16,23 71:1	161:4,11,15,19	269:1,2,19,24
tried 16:21	71:16 72:5,19	162:3,9,10,20	270:12,13,15
50:16 64:5,10	73:1,2,5,8 78:5	162:24 163:5	270:22 272:21
66:19,21,22	78:7 79:8,18	164:11,15,17	273:22 274:4
67:11 70:14	80:13 81:24,24	168:20 169:2	274:10 279:21
161:14 203:12	82:16,18,20	169:18 170:6	280:7 281:7,9
250:2 409:24	83:21,24 84:7	173:3,15,18	281:11 284:3,8
truck 55:18	84:10 85:9,15	174:2,11,18,24	284:15 285:3
true 20:1,2	85:19 88:15	176:19,23	285:17 286:2
21:9,22 22:9	89:1,24 90:13	178:5 179:4	286:24 290:11
22:17 23:24	91:12 94:1,18	181:1,12,14	290:16 293:3,6
27:23 28:4,5	95:12 96:8,14	184:2 185:11	293:17,21
29:1 30:7,16	96:19,21,23,24	185:22 186:8	294:7,19 295:3
31:18 32:1,4,9	97:1,5,7 98:23	186:16 187:11	295:13,20
32:12,18 33:12	99:12 101:2,3	187:18 188:8	296:4 297:2,18
34:3,5,7,24	101:3 103:2,6	188:14 190:23	298:8,13,18,19

299:4,19,24	361:20 362:1	trying 25:4	turned 66:2
300:18,21	363:16 364:3	41:13 56:6	turns 80:12
301:9,13	364:23 365:2	58:24 63:10	twice 41:23
302:19 303:7	367:8,17,20	65:18 70:13	178:15 211:19
303:13 304:12	370:24 371:13	78:1,9 82:22	212:17,18,21
305:7 306:10	371:18 372:7	104:12 176:20	two 27:19
307:3,12	372:18,20,23	192:19 199:21	33:16 35:3,4
308:13,23	373:15 374:3,9	235:23 237:15	51:12 55:14
309:15 310:1	374:19 375:6	248:5 286:13	59:23 60:21
311:3,16,21	376:7 377:9	tsca 7:8 19:2	76:15,17,23
312:7,13	378:15 380:14	20:18 21:14	79:5 86:17
313:13,20	381:1,2 382:4	35:22,24 42:18	92:4 99:1
314:10,14,20	384:6,20	266:6	103:24 104:5
315:4,9,14	385:15,21	tucker 69:15	111:3 121:11
316:12,18	386:1 388:11	tuesday 1:16	121:14 126:4
317:15 318:8	388:24 389:18	2:8	130:10,20
319:16,21	392:24 393:3,6	tumor 75:1	156:10 158:13
327:23 329:3,7	394:5 399:9	tumors 284:24	163:12,12
329:20 335:12	405:5,10 406:5	326:5,16	164:18 178:16
339:1,9 340:10	407:1 412:8	turn 19:15	178:17 193:14
341:4,17	truly 46:12	45:22 49:6	211:6 219:11
343:16,19	truth 15:22,22	50:24 55:9	222:22 227:19
345:21 346:3	38:20 92:23	88:23 90:18	236:6,7,7
346:18 347:1	134:9	91:14 98:18	239:4 244:13
347:10,24	try 15:10,11,12	99:16 112:2	244:13 246:1
348:3,14,23	41:18 43:6	119:9 120:3	249:16 250:11
349:14 350:2,8	44:2 49:21,24	200:3 237:21	252:9,10 253:3
350:17 351:1	50:8,11 53:4	238:11 305:16	253:3 280:20
352:1,6,13	66:8,10 83:18	311:8 318:8	280:24 300:10
353:10,18,22	111:17 134:1	334:7 345:14	305:22 330:12
354:16 356:4,5	140:18 193:22	346:7 348:11	347:14 363:4
356:9,10,13	200:17 310:21	349:1 352:3	364:6 370:19
358:9,10,23	312:1 355:3	361:10 387:23	370:22 372:16
359:4 360:19	396:19	388:5	374:7,24 375:8

<p>375:14 376:3 390:24 391:10 394:9 409:10 type 24:17,18 51:20 52:6 86:14 108:9 128:20 148:1,7 148:23 149:4,6 156:24 183:10 185:9,10 194:3 209:16 210:13 210:16 212:12 224:11 225:19 226:7,13 228:3 277:20 390:5 types 20:4 76:1 82:6 280:4 329:19 331:5 331:18 379:22 typical 313:4 316:4 typically 115:5</p>	<p>ultimately 25:15 32:17 57:14 58:21 70:14 301:20 308:9 310:17 369:11 umass 180:8,20 202:4,5 umbrella 22:24 un 49:4 unaware 118:9 119:1 120:24 177:23 uncertain 390:16 uncertainty 94:13 100:11 300:10 312:22 313:1 387:11 387:18 unclear 155:7 243:13,16,17 243:20,24 311:15 312:6 312:12,16 under 7:6 29:17 31:20 35:24 37:12 58:10 62:1 79:17 92:18 101:21 120:15 133:4,10 145:11 150:13 156:14 158:6</p>	<p>158:12 173:11 198:3 214:19 223:23 224:5 231:9,19,20 232:20,21 237:23 238:14 240:20 241:1 241:14,24 242:21 243:7 243:11,11,12 244:8 247:1 251:9,14 253:14 254:6,6 255:9,15 288:15 299:13 303:19 305:17 308:6 309:22 311:9 312:20 313:19 314:19 315:21 319:11 350:19 351:10 351:11 352:5 352:16 353:3 357:16 361:18 365:17 371:24 372:15 373:14 375:19 381:10 382:2 384:16 395:10 402:24 410:10 412:1,4 412:12 underestimated 389:4</p>	<p>understand 14:5,10,11,15 14:17 41:15 66:7 97:19 102:10 121:7 123:14 125:12 132:10 140:22 146:17 149:17 170:14 172:15 177:23 189:5 192:16 203:21 208:6 215:13 215:24 223:12 250:19 252:19 257:20 260:20 285:11 309:7 355:1 392:3 409:19 understanding 77:1 94:16 104:8,10 122:7 124:19 177:15 205:2,23 211:24 265:12 296:13 328:17 403:17 410:12 412:11 understood 63:17 121:19 121:20 uninformative 317:20 unit 403:2,3,7</p>
u			
<p>u.s. 2:15 5:4 10:16 244:11 316:4 400:6 uh 14:24 247:4 uk 10:4 342:19 ultimate 38:13 73:19 135:21 329:22 340:8 340:11</p>			

<p>united 1:1 5:3 12:17 13:6,8 90:7 116:7,12 117:6 122:14 125:23 127:8 135:14 203:15 203:18 350:8 353:21 354:2 391:9 410:14</p> <p>university 46:14 50:1 51:10 89:19 96:17 97:10 99:10 202:5</p> <p>unknown 251:16 252:4 316:1 317:12 318:6,17</p> <p>unmeasured 231:12 237:6</p> <p>unreasonable 265:14</p> <p>unreliable 372:5 390:22</p> <p>unstable 362:13 372:4</p> <p>unsupported 79:5</p> <p>untrue 38:2 46:9 77:20 94:3</p> <p>unvalidated 350:3</p>	<p>update 9:5,8 224:16</p> <p>updated 8:3</p> <p>upwards 297:17</p> <p>usa 7:2 11:21 17:24 119:19 261:3 402:10</p> <p>usdoj.gov 5:14 5:15,16,17,18</p> <p>use 25:23 40:11 40:21 80:23 104:13 123:9 146:13 264:19 264:21,22 265:13 266:4 269:17 285:5 285:12 299:5 302:1 306:3 341:22 352:19 355:17 360:18 381:12,17 387:18 396:17 398:10</p> <p>used 25:20 28:7 28:8 33:9 40:4 40:14 56:21 58:11 92:3 124:14,20 205:9 233:9 243:17,20 246:21 247:19 248:15 270:2 284:9 285:11</p>	<p>286:2 287:2,4 295:15 299:24 300:3 301:3,24 310:8,9 315:5 328:23 337:24 350:1,3 371:16</p> <p>usepa 90:7 97:2 135:19 276:17</p> <p>uses 283:24 284:2,4</p> <p>using 11:9 16:2 26:2 27:16 28:9 52:1 225:23 237:5 242:4 248:12 249:2 271:17 272:18 283:12 284:7 285:22 285:24 286:4 286:15 350:24 351:1,5 362:10 390:21</p> <p>usmc 8:17 10:10,21</p> <p>usual 79:3</p> <p>utility 105:15 109:22</p> <p>utility's 105:18 109:24</p> <p>utilize 206:4</p> <p>utilized 268:19 295:12 314:13 377:2</p>	<p style="text-align: center;">v</p> <p>v 8:6</p> <p>vague 78:3</p> <p>vaguely 80:11</p> <p>valberg 34:13 65:8 112:21</p> <p>valid 63:15,18 63:22 64:4 250:7</p> <p>validated 396:18 398:10</p> <p>value 362:14</p> <p>values 271:22 272:6</p> <p>varied 338:1</p> <p>varies 137:12 141:4 143:20</p> <p>variety 166:12 332:19 333:9 382:18</p> <p>various 21:4 26:13 36:3 224:12,12 264:21</p> <p>varying 243:14 243:21</p> <p>vc 291:1</p> <p>vein 273:21</p> <p>ventilation 313:9</p> <p>verbatim 413:8</p> <p>verbiage 224:10</p>
--	--	--	---

<p>verify 115:22 132:6 verifying 96:23 versus 113:15 137:18 179:6 250:3 257:2 vested 20:17 21:13 35:22 94:10 100:6 vickery 1:23 2:21 413:3,21 video 1:13 2:11 12:13 93:22 videoconfere... 5:22 videographer 5:20 12:7,10 13:9 68:19,22 131:18,21 132:6 220:6 221:8 234:12 234:15 245:13 245:16 287:13 287:16 289:15 289:20 344:6 344:15 392:7,9 392:13,16 397:13,16 409:11,14 410:21 view 81:14 89:8 379:4 viewpoints 95:18</p>	<p>vinyl 136:14 178:2 184:8 201:5 290:22 291:16,16,23 292:17 293:5 virtually 240:8 256:7 visits 183:7,7 306:4 vitae 8:7 voice 56:6 volume 313:9 volunteers 56:19 57:9 vom 51:10 53:1 53:15,22</p>	<p>223:11 224:9 224:10 230:12 233:19 234:8 247:5 250:10 250:18 254:14 260:1 265:16 270:20 274:15 287:9,11 292:10,14,21 298:1 305:14 305:17 320:3 356:19 359:14 359:23 366:7 368:12 373:21 373:21 374:11 379:20 380:6 406:2,21</p>	<p>14:3 126:12,22 137:22,24 138:11,15,17 138:23 139:9 139:11 164:1 210:6,14,17 211:20 212:2,8 212:9,14 228:14,22 229:9 262:18 264:23 387:10 387:12,14 388:15,20 389:6 390:12 390:14,15 398:3,5 400:14</p>
	<p style="text-align: center;">w</p> <p>w 139:5 w.l. 8:6 179:7 wait 232:3 346:20 375:23 waived 410:23 walk 77:14 walked 81:8 wallace 5:23 want 15:2 18:7 32:16 67:3 69:3 73:5 102:14 104:24 125:2 131:14 134:8 169:9 189:14 201:13 213:1 221:16</p>	<p>wanted 71:12 71:14 129:9 140:18 141:1 167:24 213:12 224:15 226:3 236:12 392:10 wanting 71:6 was 139:1,2,3 139:11 washington 2:17 3:21 5:12 12:15 55:15 138:22 139:1,3 watchdog 96:3 water 1:7 8:11 8:17 9:15 10:9 10:16,21 12:16</p>	<p>way 15:22 20:12 27:5 32:16 38:22 52:1 73:21 86:4 90:20 98:15,20 108:19 111:17 119:22 142:21 154:20 167:8 167:18 174:22 183:21,22 184:6 185:10 188:14 189:12 190:22 194:11 198:10 200:13 209:17 227:8 232:18 255:20 264:14 273:8</p>

283:15 285:13	242:21 243:12	87:9 93:19	184:12 186:15
298:24 299:8	251:10,10,16	100:3 269:7	187:21 190:4
299:14 300:5	252:3 254:6	wholly 351:6	191:14 192:8
300:13 302:2	257:2 381:10	wide 370:12,21	193:13 194:21
302:16,21	382:2 383:2	371:10	196:4 197:19
314:1,6 324:21	393:5 394:13	widely 82:20	198:9 200:1
328:18 330:12	394:14,22,24	104:2	203:15 207:20
343:1 345:19	395:4 396:4	willing 408:23	208:15,19
350:4,14,16	webinar 99:9	witness 13:13	210:21 213:10
355:23 394:8	99:13	16:15 23:7	217:5 218:17
395:5 396:24	week 26:11	24:3 26:23	219:10 223:18
403:17,19	408:5	32:8,21 34:12	228:17 233:15
ways 66:8,10	weeks 163:12	37:17 40:20	239:15 245:4
we've 115:19	163:22	41:22 45:20	245:10 254:20
131:12 133:21	weight 9:11	49:15 50:15	256:15 264:6
133:24 134:14	59:11 269:17	52:12 57:18	269:10 271:7
159:2 208:10	269:24 270:1,5	58:19 62:6,13	286:8 288:4,12
257:12 266:9	270:6,21	65:13 66:14	295:15,22
287:7 392:21	275:17 280:12	67:21 70:7	297:6,20
weak 328:1,8	291:2 293:20	71:19 73:8	298:23 301:2
328:19,20	294:18 295:1	77:12 82:3	302:6 303:16
329:4,13 340:4	295:11	85:21 86:24	305:10 307:15
weakness	went 85:14	87:19 93:11	310:4 312:15
231:20 232:21	106:9 107:14	98:11 101:14	313:23 314:22
235:16,18	112:11 213:13	103:13 107:11	315:17 316:21
241:18 244:3	214:17 215:22	109:5 116:15	317:18 318:12
244:10 246:15	217:7,12 225:7	117:1,11,21	318:22 319:7
246:17 247:23	227:20 265:15	126:9,18	319:24 321:2
249:15,20	362:20	128:12 135:17	321:22 323:16
250:3,16,23	west 4:18	142:8 143:4	324:5,13 325:1
252:5 384:2,16	westlake	151:3,24	325:13 327:18
385:13 386:1	183:14,16	153:24 155:6	329:10 333:2
weaknesses	white 7:11	159:3,6,14	335:2 336:10
238:14 241:3	46:13 48:11	160:6 164:20	337:17 338:10

338:21 339:3	215:22 243:17	136:10,14,17	367:1
339:12 340:1	243:20 311:17	137:1,9 145:6	working
340:21 346:20	311:23 326:21	146:4,8 147:17	130:13,17
347:18 348:6	341:22 407:1	159:3 164:20	132:12 135:17
350:11 351:4	worded 154:20	171:12 172:19	137:22 139:15
352:23 354:24	246:18	176:4,13	146:8 151:9,12
355:15 356:15	wording	180:12 187:1	151:20 218:23
358:6 359:20	246:10 278:24	188:6,15,23	219:5 224:22
360:22 363:22	words 145:13	189:6,14,18	226:5,6,9,18
364:6 365:12	146:8 151:17	213:15 224:5	237:2 248:24
366:2 367:19	214:22 215:5,7	225:19 226:20	251:24
369:8 371:3	217:11 283:13	226:22,23	works 141:13
372:10 376:14	284:7,9 285:22	230:2 256:10	155:13 265:2
377:12 378:4	285:24 286:14	267:21 268:8	403:19
378:18 379:14	299:21,23	277:22 403:18	world 91:7
381:5 382:13	301:24 302:1	405:15,23	104:17 182:18
384:9,23	302:13 315:5	407:7,8,11	192:4
386:13 390:9	work 20:2	409:6,7	world's 177:5
391:6 396:2	21:17,18,20	worked 23:3	worth 122:22
397:8,19	24:14 25:2	32:4 69:15	worthy 30:14
398:18 399:13	29:19 30:6,7	80:17 105:5	wr 32:15
400:1,21	32:7 35:20	115:17 126:23	171:16
401:20 404:8	36:18 37:4,9	133:2 157:5	write 24:12,17
405:20 407:5	37:14,24 38:2	171:3 188:19	24:20 34:9,18
408:17 409:3,5	38:5,12,18	189:15 202:21	34:21,24 47:3
410:19 413:6	50:23 61:10	217:23 218:19	49:7 65:9,10
women 362:12	64:14 72:5	218:21 221:19	65:18 69:17
365:3 366:12	80:7,23,24	222:3 224:12	70:13 71:3,3
367:11,12,23	86:24 95:2	224:14 226:10	81:20 84:2,15
367:24 368:10	116:12 117:4	227:17 268:22	128:18 147:6
word 76:14,15	117:14 122:8	350:6 407:24	167:23 170:10
76:21,22	122:14,23	workers 8:10	216:6 252:10
145:14 147:13	124:9 125:22	10:20 11:8	252:15 253:3
150:18,19	128:17 135:15	361:16,18	263:15

<p>writing 71:4 72:23 94:21 145:21 146:24 156:23 353:21 writings 124:11 written 29:22 31:5 32:11 33:2,10 53:17 55:2 61:15 108:1,9,13,18 108:23 110:7 167:9 168:22 170:3 171:22 226:8 232:19 293:17 342:13 wrong 36:22 37:6 38:8 45:15 54:17 61:8,21 85:24 111:24 215:10 242:11 288:20 288:21 393:21 wrote 22:13 30:17,18 35:11 39:9 45:3 47:7 53:19 54:23 70:22 73:9 75:21 77:20 80:21 81:8 90:4,10 94:24 103:19 105:21 106:3,9 214:6 215:7,19 216:12,16,17</p>	<p>217:17 236:6 252:14 300:9 304:15 393:9 x x 271:14,20 273:15 y y 271:16,21 273:16,18,18 273:22 yeah 18:11 20:23 29:5 32:21 78:4 98:4 99:4 108:21 125:18 131:14,16 143:4 145:19 151:8 159:1 160:11 166:22 172:3 174:7 199:19 201:1 205:15 215:18 221:22 239:13 248:15 271:1 287:12 290:7 292:16 321:4 321:19 327:2 353:1 374:17 380:22 388:5,6 392:9 year 28:16 101:9 124:4,17 124:18 125:3</p>	<p>125:11 137:12 137:12,13,14 137:18 141:5,5 141:12 143:20 179:18 183:9 202:20 342:16 366:24 368:22 388:1 years 27:4 29:11 43:20,23 72:5 89:14 93:15 114:12 114:15,17 115:14 120:21 124:23 125:13 125:24 127:2 130:20 155:23 175:6 186:5 193:2,15 217:24 240:9 253:17,17 256:9 297:18 307:19 365:17 405:5 yep 349:4 357:4 york 103:19,22 109:12 112:3 113:23 173:12 yu 10:5 342:15 z zachary 3:4 12:23</p>	<p>zack 13:24 zero 132:23 zhao 251:5 zina 3:19 zina.bash 3:24 zmandell 3:11 zoom 3:7,19 4:5,6,7,17 5:8,9 5:10 13:9</p>
--	--	--	---

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.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted

fashion to authenticated parties who are permitted to access the material. Our data is hosted in a Tier 4 SSAE 16 certified facility.

Veritext Legal Solutions complies with all federal and State regulations with respect to the provision of court reporting services, and maintains its neutrality and independence regardless of relationship or the financial outcome of any litigation. Veritext requires adherence to the foregoing professional and ethical standards from all of its subcontractors in their independent contractor agreements.

Inquiries about Veritext Legal Solutions' confidentiality and security policies and practices should be directed to Veritext's Client Services Associates indicated on the cover of this document or at www.veritext.com.