

# Exhibit 583

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

IN RE: )  
CAMP LEJEUNE WATER ) Case No:  
LITIGATION ) 7:23-cv-00897  
)  
This Document Relates to: )  
ALL CASES )

The video-recorded and videoconferenced deposition of BENJAMIN WALTER HATTEN, M.D., MPH, taken pursuant to the Federal Rules of Civil Procedure of the United States District Courts pertaining to the taking of depositions, reported by Pauline Vargo, Certified Shorthand Reporter, Registered Professional Reporter and Certified Realtime Reporter, at Suite 100, 26 West Dry Creek Circle, Littleton, Colorado, on July 7, 2025, commencing at 8:58 a.m. Mountain Time.

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Continued

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I N D E X

Monday, July 7, 2025

WITNESS

EXAMINATION

BENJAMIN WALTER HATTEN, M.D., MPH

By Mr. Ortiz.....Page 9

By Mr. Ruzicka.....Page 215

1	E X H I B I T S	
2	HATTEN EXHIBIT	INTRODUCED/MARKED FOR ID
3	Exhibit 37	10
4	Notice of Deposition and Request for Production of Documents to Benjamin Hatten, M.D.	
5	Exhibit 38	11
6	Objections and Responses to Defendant's Notice of Videotaped Deposition of Dr. Benjamin Hatten	
7	Exhibit 39	13
8	Phase III Report (Criswell), 8 pages	
9	Exhibit 40	14
10	Phase III Report (Raymond), 7 pages	
11	Exhibit 41	14
12	Phase III Report (Cagiano), 8 pages	
13	Exhibit 42	14
14	Phase III Report (Laramore), 8 pages	
15	Exhibit 43	14
16	Phase III Report (Dyer), 7 pages	
17	Exhibit 44	17
18	Dr. Hatten's Materials Considered List on Plaintiffs Cagiano, Criswell, Dyer, Laramore and Raymond, 4 pages	
19	Exhibit 45	19
20	Dr. Hatten's Supplemental Materials Considered list, 1 page	
21	Exhibit 46	66
22	Appendix A9 CLJA_WATERMODELING_01-000942781 through CLJA_WATERMODELING_01-000942788	
23	Exhibit 47	78
24	Dr. Kelly Reynolds' Cumulative Exposure Expert Report, 103 pages	
25		

E X H I B I T S

Continued

HATTEN EXHIBIT	INTRODUCED/MARKED FOR ID
Exhibit 48	96
Additional File 2: Table S1: Categorical Cumulative Exposures and Underlying Cause of Death, 10 pages	
Exhibit 49	101
5/17/22 Zantac Litigation Deposition Transcript of Dr. Hatten	
Exhibit 50	130
Lynge, et al., Study, Cancer in Persons Working in Dry Cleaning in the Nordic Countries, 7 pages	
Exhibit 51	134
Collarile, et al., study, Residence in Proximity of a Coal-Oil-Fired Thermal Power Plant and Risk of lung and Bladder Cancer in North-Eastern Italy, 19 pages	
Exhibit 52	141
5/12/25 Deposition transcript of Dr. Benjamin Hatten	
Exhibit 53	179
Corrected Appendix 3, Terry F. Dyer, Bladder Cancer, 12 pages	
Exhibit 54	204
American College of Emergency Physicians Policy Statement	

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## E X H I B I T S

- Previously marked -

HATTEN EXHIBIT FIRST REFERRED TO

Exhibit 12 95

Bove, et al., study, Evaluation of  
mortality among Marines and Navy personnel  
exposed to contaminated drinking water at  
USMC base Camp Lejeune: A retrospective  
Cohort study

Exhibit 15 106

ATSDR document, Morbidity Study of  
Former Marines, Employees, and  
Dependents Potentially Exposed to  
Contaminated Drinking Water at  
U.S. Marine Corps Base Camp Lejeune

Exhibit 16 86

Bove, et al., 2014 Article, Cancer  
Incidence among Marines and Navy personnel  
and Civilian Workers Exposed to Industrial  
Solvents in Drinking Water at U.S. Marine  
Corps Base Camp Lejeune: A cohort Study

Exhibit 26 111

Aschengrau, et al., article, Cancer Risk  
and Tetrachloroethylene-Contaminated  
Drinking Water in Massachusetts

Exhibit 33 124

Hadkhale, et al., article, Occupational  
exposure to solvents and bladder cancer:  
A population-based case control study in  
Nordic countries

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1 THE VIDEOGRAPHER: Good morning.

2 We are now on the record.

3 My name is Julie Butcher. I'm the  
4 videographer with Golkow. Today is July 7,  
5 2025, and the time on the record is 8:58 a.m.  
6 Mountain Time.

7 This video deposition is being held  
8 in Littleton, Colorado, in regards to Camp  
9 Lejeune Water Litigation, being heard before  
10 the United States District Court for the  
11 Eastern District of North Carolina.

12 The deponent is Benjamin  
13 Hatten, M.D.

14 Counsel, will you please identify  
15 yourselves for the record.

16 MR. RUZICKA: Ted Ruzicka for the PLG.

17 MR. ORTIZ: David Ortiz and Haroon  
18 Anwar for DOJ.

19 THE VIDEOGRAPHER: Our court reporter  
20 is Pauline Vargo, and she will now swear in  
21 the witness.

22 THE REPORTER: Would you raise your  
23 right hand, please, to be sworn.

24 (The witness was duly sworn.)  
25

1 BENJAMIN WALTER HATTEN, M.D., MPH,  
2 called as a witness herein, having been first duly  
3 sworn, was examined and testified as follows:

4 EXAMINATION

5 BY MR. ORTIZ:

6 Q. Dr. Hatten, we met off the record, but  
7 again, my name is David Ortiz, and I will be  
8 representing United States in today's deposition.

9 I know that you have been deposed  
10 before, including in this litigation, so I will  
11 just kind of briefly recap the main rules of the  
12 road.

13 You are under oath, and that means that  
14 you need to answer all my questions truthfully and  
15 completely as if you were in a court before a judge  
16 or jury. If you don't understand my question, just  
17 ask me to repeat, and I will be happy to do that.  
18 And I will assume that you understood my question  
19 if you don't ask me to do that.

20 We can take a break at any time you want  
21 so long as you answer any pending question. I will  
22 try not to talk over you. Please try not to talk  
23 over me, and likewise, I will try not to interrupt  
24 you if you are answering a question.

25 Does all that sound good to you?

1           A.     Yes.   That's fine.

2           Q.     Is there any reason we can't proceed  
3 today?   Any medications you are on that would  
4 prevent you from understanding and answering my  
5 questions?

6           A.     No.

7           Q.     Did you bring anything to this  
8 deposition?

9           A.     No.

10                   MR. ORTIZ:   I'm going to hand you a  
11 copy of the first exhibit, and Ted, we are  
12 going to go in order.   I think we ended last  
13 time or they ended last time on 36.   So this  
14 will be Hatten Exhibit 37.

15                               (Exhibit 37 was marked for  
16 identification and is attached to  
17 the transcript.)

18 BY MR. ORTIZ:

19           Q.     And do you recognize Exhibit 37 as a  
20 copy of the Notice of Deposition and Subpoena that  
21 was served on June 9th, 2025?

22           A.     Yeah, it appears to be that.

23           Q.     You have seen that document before?

24           A.     I believe so.

25           Q.     Okay.   I'm going to hand you Hatten

1 Exhibit 38.

2 (Exhibit 38 was marked for  
3 identification and is attached to  
4 the transcript.)

5 BY MR. ORTIZ:

6 Q. All right. And do you recognize Hatten  
7 Exhibit 38 as a copy of the Objections and  
8 Responses to Defendant's Notice of Videotaped  
9 Deposition of Dr. Benjamin Hatten that was served  
10 on June 27, 2025?

11 A. I don't know if I've actually seen this  
12 document before or not, but...

13 Q. Okay, okay. No problem. I will  
14 represent to you that's what it is.

15 You haven't submitted any invoices to  
16 PLG after April 17th of 2025. Is that correct?

17 A. I don't know if I've submitted any after  
18 that or not. I have some invoices for preparation  
19 for this deposition, but I don't know if they have  
20 been submitted. And I'm not sure if there are any  
21 additional ones between April and then, so...

22 Q. Okay. Well, let me ask you this: You  
23 said you submitted invoices for preparation for  
24 this deposition, correct?

25 MR. RUZICKA: Objection, form.

1           A.     I don't know that I've submitted those  
2     yet. My -- my assistant -- I prepared invoices or  
3     my assistant is preparing invoices. I don't know  
4     if they have been submitted or not, though.

5           Q.     And would that be for time that was  
6     after April 17th of 2025?

7           A.     Yes, that would be for time after that.

8           Q.     And you will be submitting those  
9     invoices in the future?

10          A.     Yes, if they haven't been submitted  
11     already.

12          Q.     Okay. And going back to Hatten Exhibit  
13     37, do you agree that the subpoena asks for certain  
14     documents and communications to be produced?

15          A.     Likely. I don't recall the specific  
16     language, but...

17          Q.     Sure. If you turn to Attachment A, and  
18     do you see in Attachment A that there are certain  
19     categories of documents or communications that are  
20     requested?

21          A.     Yes.

22          Q.     And you searched for any responsive  
23     documents or communications in response to that  
24     request, correct?

25          A.     Yes. I haven't had any communications

1 other than direct conversations with the attorneys.

2 Q. Okay. And what steps did you take to  
3 conduct that search for any responsive documents or  
4 communications?

5 A. I haven't communicated with anybody, so  
6 there is -- I don't know what the -- I'm not really  
7 sure how to answer that because I haven't had any  
8 communications outside of a direct conversation  
9 with my attorneys.

10 Q. Sure. Did you search, you know, your  
11 email inbox or anywhere else to confirm whether or  
12 not you had those communications, or is it fair to  
13 say you just knew that you didn't have those  
14 communications?

15 A. I just knew that I didn't have those  
16 communications.

17 Q. Okay. So you didn't take a separate  
18 search for those; you just knew that they weren't  
19 there?

20 A. Correct.

21 Q. All right. You can put those to the  
22 side. I'm going to hand you Hatten Exhibit 39.

23 Whoops, sorry. Let me take that one  
24 back, actually. My apologies.

25 (Exhibit 39 was marked for

1 identification and is attached to  
2 the transcript.)

3 BY MR. ORTIZ:

4 Q. I hand you Exhibit 39. We will get to  
5 that one.

6 (Exhibits 40, 41, 42 and 43 were  
7 marked for identification and are  
8 attached to the transcript.

9 BY MR. ORTIZ:

10 Q. I hand you Hatten Exhibit 40 and Hatten  
11 Exhibit 41, Hatten Exhibit 42 and Hatten Exhibit  
12 43.

13 MR. RUZICKA: I don't know if you  
14 handed me the wrong copy, but I have now got  
15 two Cagiano's. What's 41 that you just  
16 marked?

17 MR. ORTIZ: 39 should be Criswell, 40  
18 should be Raymond, 41 should be Cagiano, 42  
19 should be Laramore and 43 should be Dyer.

20 MR. RUZICKA: Do you have 42,  
21 Laramore?

22 THE WITNESS: Yes. That's what I  
23 have.

24 MR. RUZICKA: I didn't get a copy of  
25 Laramore. Thank you.

1 BY MR. ORTIZ:

2 Q. All right. Do you recognize Exhibits 39  
3 through 43 as the Phase III reports that you  
4 disclosed in the cases of Criswell v. United  
5 States, Raymond v. United States, Cagiano v. United  
6 States, Laramore v. United and Dyer v. United  
7 States?

8 A. Yes, those appear to be in my reports.

9 Q. And you prepared and signed all five of  
10 those reports?

11 A. Yes.

12 Q. They are all dated February 7, 2025?

13 A. I believe so.

14 Q. And each of them contains a complete  
15 statement of your opinions in that case?

16 A. For the specific purpose of these  
17 reports, yes, a complete statement of the opinions  
18 I have with respect to these reports.

19 Q. And each of them contains all the bases  
20 and reasons for your opinions in each case?

21 A. I believe so. I think it's hard to -- I  
22 discuss each one in isolation. I also submitted a  
23 much larger general causation report, and these are  
24 related --

25 Q. Sure.



1           A.     -- naturally related to that, so...

2           Q.     Sure, sure. And each one of these five  
3     Plaintiffs have bladder cancer. Is that correct?

4           A.     That's my understanding, although I  
5     don't have -- I haven't reviewed medical records  
6     for any patients or anything like that or any of  
7     the Plaintiffs.

8           Q.     So you haven't reviewed any medical  
9     records for any of these five Plaintiffs, correct?

10          A.     Correct.

11          Q.     And as you just mentioned a moment ago,  
12     in Phase II you disclosed a general causation  
13     report on bladder cancer?

14          A.     Yes, that's correct.

15          Q.     And then a general causation on kidney  
16     cancer as well?

17          A.     Yes, that's correct.

18          Q.     And you were deposed on May 12, 2025,  
19     about your opinions in those reports?

20          A.     I don't recall that date, but it is  
21     somewhere around then, yes.

22          Q.     And other than those opinions in your  
23     general causation reports and those opinions in  
24     those five exhibits, 39 through 43, you have no  
25     other opinions in this litigation, correct?

1           A.       Not at this time.

2                       (Exhibit 44 was marked for  
3                       identification and is attached to  
4                       the transcript.)

5       BY MR. ORTIZ:

6           Q.       Okay. I'm going to hand you Hatten  
7       Exhibit 44.

8           A.       Sorry. Could I modify what --

9           Q.       Of course.

10          A.       So there was one study that came out  
11       after this was published that I think is on my  
12       materials considered list or after these reports  
13       were submitted that I believe is on my materials  
14       considered list. I don't know if that was for the  
15       deposition, but it was a preprint sometime around  
16       that time. It doesn't change my opinions, but I  
17       would have included it in these reports had it been  
18       available.

19          Q.       And are you referring to the Yu study?

20          A.       Yes, that's correct.

21          Q.       Okay. And do you recall giving some  
22       testimony about the Yu study at your last  
23       deposition?

24          A.       I believe we discussed it during the  
25       deposition.

1 Q. Okay. And you reviewed that preprint of  
2 that study after preparing your general causation  
3 report but before preparing these five Phase III  
4 reports?

5 A. It was around the same time that I  
6 prepared these. It didn't substantially change my  
7 opinion, and I don't believe it had been published  
8 in its final form yet, so I didn't include it as a  
9 reference in here. I think at this point it's now  
10 been published in its final form, so I would have  
11 included it as a reference here.

12 Q. And have you reviewed it in its final  
13 form?

14 A. Yes, I have.

15 Q. Okay. And do you recall roughly when  
16 you reviewed that document in its final form?

17 A. Sometime within the last month, but I  
18 don't recall the exact dates.

19 Q. Okay. And are you aware of whether or  
20 not there has been a supplemental materials  
21 considered list identifying final form of the Yu  
22 study?

23 A. I don't know if there has, sir, or not.

24 Q. And were there any differences in the  
25 final form of the Yu study compared to the preprint

1 that would change any of the testimony that you  
2 gave about the preprint at your last deposition?

3 A. Not that I'm -- nothing that would  
4 contravene any testimony. I think some of the  
5 supplemental files in the final form are --  
6 potentially are informative in the dose-response  
7 curve for benzene that was modeled in that final  
8 form. It was for all cancers, though, and not  
9 specific for bladder cancer, so I don't think it  
10 would substantially change any opinions.

11 Q. Okay. Do you recognize Hatten Exhibit  
12 44 as a copy of the materials considered list dated  
13 February 14th of 2025?

14 A. Yes.

15 Q. And it lists all the facts and data that  
16 you considered in forming your opinions in your  
17 Phase III reports, correct?

18 A. I think in addition to all the material  
19 I reviewed for my general causation report.

20 (Exhibit 45 was marked for  
21 identification and is attached to  
22 the transcript.)

23 BY MR. ORTIZ:

24 Q. Okay. And I'm going to hand you Hatten  
25 Exhibit 45, and Hatten Exhibit 45 -- well, do you

1 agree that it's a supplemental materials considered  
2 list that was served this morning?

3 A. Yes.

4 Q. And it identifies the rough draft of the  
5 transcript of the deposition of Dr. Kelly Reynolds  
6 dated June 25, 2025?

7 A. Yes, that's correct.

8 Q. Okay. And is this the only supplement  
9 to Hatten Exhibit 44 that you are aware of?

10 A. Yes, that's the only one that I'm aware  
11 of.

12 Q. Okay. Going back to Hatten Exhibit 44,  
13 some of the records that are listed are military  
14 records. Is that correct?

15 A. I believe so. I had -- I was provided  
16 scanned copies of some military records.

17 Q. Do you have any training or experience  
18 reviewing military records?

19 A. Not specific to military records. I  
20 don't recall whether I reviewed military records in  
21 the past or not. I generally will review  
22 employment records for patients who have  
23 occupational exposures. I don't recall if some of  
24 those were military records or not.

25 Q. As you sit here today, do you have a

1 present recollection of reviewing military records  
2 in the past?

3 A. Not separately. Like I said, I review  
4 occupational records, and some of those may have  
5 been military, but I don't recall specifically on a  
6 case where that occurred.

7 Q. So it's specific but -- it's possible  
8 but you don't have a specific recollection?

9 A. I think that's fair, a fair  
10 consideration.

11 Q. And did you review the records that are  
12 listed in Hatten Exhibit 44 yourself?

13 A. Yes.

14 Q. Dr. Hatten, what was your assignment in  
15 Hatten Exhibit 39 through 43?

16 MR. RUZICKA: Objection just to the  
17 extent that it asks for -- your answer would  
18 entail any communications you had with  
19 counsel. That's protected and shouldn't be  
20 disclosed, but you can answer that question  
21 with that caveat. Okay?

22 THE WITNESS: Sure.

23 BY THE WITNESS:

24 A. I think the intent of each of these  
25 reports was to provide an explicit assessment of

1       their -- their -- the best estimate of each  
2       Plaintiffs' exposures at Camp Lejeune and to put  
3       that in context with what we know about bladder  
4       cancer as an outcome based on the epidemiologic  
5       literature.

6       BY MR. ORTIZ:

7             Q.       Do you know what a differential etiology  
8       or differential diagnosis is?

9             A.       Yes.

10            Q.       What's your understanding of what a  
11       differential etiology or differential diagnosis is?

12            A.       It's something I employ every day as a  
13       physician, a practicing physician where you  
14       consider possible causes of a health condition or a  
15       diagnosis and factors that make one more or less  
16       likely. It typically includes plausible or  
17       possible causes when you are working up a patient.  
18       So it's not the entire landscape of possible  
19       causes. It's ones that are plausible or possible  
20       for a specific patient.

21            Q.       And do you understand those terms,  
22       "differential etiology" and "differential  
23       diagnosis," to be synonymous?

24            A.       I think colloquially they are used  
25       synonymously. I think they are slightly different

1 in that "etiology" is a causal term. It's the --  
2 it refers to the potential causes, whereas a  
3 diagnosis is the possible, like, medical diagnosis  
4 that is responsible for someone's symptoms, so....  
5 But, however, they are used, frequently used  
6 interchangeably in, like, common speech.

7 Q. And your testimony is that you perform  
8 both of those or one of those every day in your  
9 clinical practice?

10 A. I perform both in my clinical practice.  
11 Sometimes it's combined and sometimes they are  
12 separate.

13 Q. Does it tend to be more -- one over the  
14 other more often?

15 A. I think it just depends on the reason  
16 I'm seeing a patient and what their presentation  
17 is, so I wouldn't say that one is more common than  
18 the other. They're -- I use both fairly  
19 frequently.

20 Q. And you did not perform a differential  
21 etiology or diagnosis in your Phase III reports,  
22 correct?

23 A. Not an explicit one. I think I  
24 referenced that the -- my conclusion, at least in  
25 these reports, and I think I state it explicitly,



1 is, "I would consider exposures of this magnitude  
2 in a differential diagnosis for a patient  
3 presenting to my practice with suspected bladder  
4 cancer." I think that's used -- as I said, it's  
5 often used interchangeably. It probably would be  
6 more precise to say "differential etiology" in the  
7 printed report, but it was used in a kind of  
8 interchangeable fashion.

9 Q. So, Dr. Hatten, you just referred to a  
10 portion of your report, and I'm looking at Exhibit  
11 39, which is the Criswell report that you just read  
12 from on page 4; and it states, just to reread it,  
13 quote, "Additionally, I would consider exposures of  
14 this magnitude in a differential diagnosis for a  
15 patient presenting in my practice with suspended  
16 bladder cancer," end quote.

17 Did I read that correctly?

18 A. Yes, you read that correctly.

19 Q. And does the term "would" signify that  
20 you did not actually conduct a differential  
21 diagnosis in these Phase III reports?

22 A. Correct. I did not have -- I did not  
23 review, like I said, full medical records or  
24 anything like that. It's -- it was really just a  
25 consideration of whether this exposure is at the

1 magnitude that it's plausible or reasonable to  
2 consider this within a differential etiology or  
3 differential diagnosis.

4 Q. Sure. And you don't opine that any of  
5 these Plaintiffs' exposures at Camp Lejeune in fact  
6 caused their bladder cancer, correct?

7 A. Correct. That's not an opinion I've  
8 expressed.

9 Q. And just for the record, you agree that  
10 the chemicals at issue are trichloroethylene or  
11 TCE; perchloroethylene or tetrachloroethylene or  
12 PCE; vinyl chloride; and benzene?

13 A. Yes. Those -- those are the causative  
14 or potential culprit exposures at Camp Lejeune.  
15 There is also DCE, which was measured in some  
16 context, but I have not ever expressed an opinion  
17 that I think DCE is a possible cause of bladder  
18 cancer, or DCE exposure at Camp Lejeune as a  
19 possible cause of bladder cancer.

20 Q. And just to be clear, so you would agree  
21 that you have never expressed in your reports any  
22 opinion that DCE can cause bladder cancer, the DCE  
23 exposure at Camp Lejeune can cause bladder cancer,  
24 correct?

25 A. I have not expressed that opinion.

1 There is a marker of exposure that Dr. Bove  
2 employed in some of his studies that is total  
3 volatile organics compounds that includes DCE, but  
4 I don't -- I have never expressed the opinion that  
5 DCE can cause bladder cancer.

6 Q. Dr. Hatten, I want to talk a little bit  
7 about your methodology in the Phase III reports.  
8 Does that sound good to you?

9 A. Yeah, that's fine.

10 Q. Is it fair to say that first you  
11 reviewed Dr. Kelly Reynolds' report as to each of  
12 these Plaintiffs?

13 A. I don't know if that the first thing,  
14 but I did review her -- I don't even know that I  
15 reviewed her entire report. I reviewed a kind of  
16 summary of estimated exposures that she generated,  
17 but I don't know that I reviewed her entire report.

18 Q. Sure, and we will look at it later, just  
19 to give you a preview. But her report was a sort  
20 of summary section and then separate appendices for  
21 each one of the Plaintiffs in this litigation,  
22 correct? Is that what you recall?

23 A. I don't recall if I reviewed an entire  
24 report or just the -- just summary tables of  
25 exposures. I just can't recall at the moment.

1           Q.     Sure, sure, sure. We will look at it a  
2     little bit later. But you agree that Dr. Reynolds  
3     is a exposure expert retained by Plaintiffs in this  
4     litigation?

5           A.     That's my understanding, but I have  
6     never had any direct communication with her or --  
7     and I don't know her professionally.

8           Q.     Okay. And you anticipated my next  
9     question, which was, did you ever meet with  
10    Dr. Reynolds?

11          A.     As I just said, no.

12          Q.     Dr. Reynolds calculated the exposure  
13    doses of TCE, PCE, vinyl chloride and benzene from  
14    Camp Lejeune for each Plaintiff, correct?

15          A.     Correct.

16          Q.     And in doing that, she used a unit of  
17    micrograms per liter per month and a unit of total  
18    mass and total micrograms, correct?

19          A.     I think depending on the Plaintiff, but  
20    in general, those were the exposure metrics she  
21    used.

22          Q.     And can you tell me what an exposure  
23    dose is?

24          A.     It's the amount of a substance that  
25    someone is exposed to. I don't know that there is

1 a more specific way to express that.

2 Q. Is that different from an absorbed dose?

3 A. It can be if there is not full  
4 absorption of a -- of an exposure, or it really  
5 depends on the compound you are talking about, but  
6 it can be different.

7 Q. What factors would drive those  
8 differences?

9 A. It would depend on the properties of the  
10 compound itself and the -- you can have individual  
11 patient factors that influence absorption. So it's  
12 both properties of the patient or the person who is  
13 exposed and the properties of the compound itself.

14 There are additional factors such as  
15 personal protective equipment or barriers that may  
16 change the amount, but those tend to affect the  
17 exposure rather than the absorption most often in a  
18 patient. But, again, it depends on the specific  
19 scenario.

20 Q. What would be an example of a  
21 patient-specific factor that would drive a  
22 difference between exposure dose and absorbed dose?

23 A. You sometimes have, for example, a  
24 different nutritional status may impact the amount  
25 you absorb, or co-ingestions or co-exposures may

1 impact the amount absorbed. Those are just two  
2 examples. It's not a comprehensive list.

3 Q. Sure. Would body weight be another  
4 example?

5 A. Depending on the exposure. It's not for  
6 every exposure, though.

7 Q. For some exposures it could be?

8 A. It could be, but we would have to talk  
9 about the specific exposure and the properties.

10 Q. How about alcohol, for example?

11 A. Not necessarily for the absorbed dose.  
12 Your body weight tends to, and in addition to  
13 gender, it affects the -- your kind of peak blood  
14 alcohol. But the amount, the total amount of  
15 alcohol you absorb is not necessarily affected by  
16 your body weight.

17 Q. And in your practice as a medical  
18 toxicologist, do you focus more on exposure dose or  
19 absorbed dose in trying to understand the possible  
20 health effects of an agent on an individual?

21 MR. RUZICKA: Objection to form.

22 BY MR. ORTIZ:

23 Q. You can answer.

24 A. It really depends on the particular  
25 compound or toxin we are considering.

1           Q.       So for some compounds or toxins you  
2 would focus more on absorbed dose; is that correct?

3           A.       Sometimes, although I think we think of  
4 it less in absorbed, less in the context of  
5 absorbed dose and more in the context of your total  
6 exposure or total bioavailability, like the total  
7 amount of the compound that's available in your  
8 body to affect you, because sometimes you absorb  
9 something and it is -- there are various factors  
10 that impact whether the absorbed dose is kind of  
11 the key metric for whether -- whether that's a  
12 toxic exposure or not.

13          Q.       Is it your understanding that  
14 Dr. Reynolds' calculations account for all routes  
15 of exposures: ingestion, inhalational and dermal?

16          A.       My understanding was that it's primarily  
17 ingestion, was the way she said it, set up her  
18 calculations, particularly when discussing the  
19 total amount absorbed or the total amount exposed,  
20 like her cumulative exposure metrics.

21          Q.       And she relied on ATSDR's water modeling  
22 for Hadnot Point and Holcomb Boulevard and Tarawa  
23 Terrace, correct?

24          A.       That's my understanding.

25          Q.       And when I say "ATSDR," you understand

1       that I'm referring to the Agency for Toxic  
2       Substances and Disease Registry, correct?

3           A.       Yes.

4           Q.       And you understand that Hadnot Point,  
5       Holcomb Boulevard and Tarawa Terrace are three  
6       locations within Camp Lejeune?

7           A.       Yes, that's my understanding.

8           Q.       And you understand that no other water  
9       distribution systems at Camp Lejeune were  
10       contaminated, correct?

11                   MR. RUZICKA:  Objection, form.

12       BY MR. ORTIZ:

13           Q.       You can answer.

14           A.       My understanding is that those three are  
15       the only ones that have been recognized to be  
16       contaminated.  I don't know if testing has been  
17       completely comprehensive for all the other water  
18       systems to fully rule out exposures in other water  
19       systems, but my understanding is those three are  
20       the only ones that have had confirmation of  
21       contamination.

22           Q.       And those three are the only ones that  
23       ATSDR performed water modeling for, correct?

24           A.       That's my understanding.

25           Q.       And if a Plaintiff spent time at Camp



1 Geiger or Camp Johnson, did you include that time  
2 your exposure calculations in your Phase III  
3 reports?

4 A. I did not, and I believe I have some  
5 assumptions where I -- where I discussed them. I'm  
6 using the modeling --

7 Q. Right.

8 A. -- as presented by ATSDR, and that's  
9 what Kelly Reynolds used.

10 Q. And you agree that there is no sampling  
11 data available for Hadnot Point or Tarawa Terrace  
12 from before the 1980s, correct?

13 A. I don't recall the exact date, but it's  
14 roughly 1980 was the first one, or roughly 1980. I  
15 just don't recall if there were any in the late  
16 '70s or not.

17 Q. And that's why ATSDR or why ATSDR had to  
18 do the water modeling?

19 MR. RUZICKA: Objection to form.

20 A. I believe that is, or my understanding  
21 is that was their motivation, but I was not  
22 involved in any of the original discussions around  
23 water modeling or how they set up their -- the  
24 water modeling.

25 Q. And ATSDR modeled the mean monthly

1 concentrations of the chemicals at issue measured  
2 in units of micrograms per liter, correct?

3 A. Correct.

4 Q. And in water, you would agree with me  
5 that 1 microgram per liter is equivalent to 1 part  
6 per billion, correct?

7 A. I believe that's correct.

8 Q. And both of those units describe  
9 concentration of a chemical within water, correct?

10 A. Yes, yes. They both described that.  
11 It's not necessarily exclusive to water, but they  
12 are describing a concentration.

13 Q. Within a solution?

14 A. Correct.

15 Q. As opposed to a total mass?

16 A. Correct. It doesn't have to be in a  
17 solution because, for example, air pollution is  
18 sometimes expressed as parts per billion. Usually  
19 it's micrograms per meters cubed or something  
20 equivalent for -- for inhaled exposures, so it's  
21 not exclusive to a solution that those  
22 concentrations are expressed.

23 Q. And is it fair to say then that in your  
24 Phase III reports you rely on Dr. Reynolds'  
25 calculations?

1           A.       For the most part. There are occasional  
2 times I performed my own, but in general I relied  
3 on her calculations.

4           Q.       And then we will discuss some of that,  
5 but did you use those as a starting point?

6                   MR. RUZICKA: Objection, form.

7           A.       In general, yes.

8           Q.       And do you agree that Dr. Reynolds'  
9 calculations rely on ATSDR's water modeling?

10          A.       That's my understanding.

11          Q.       And do you agree that if ATSDR's water  
12 modeling is inaccurate, then Dr. Reynolds'  
13 calculations also would be inaccurate?

14                  MR. RUZICKA: Objection, form.

15          A.       Well, it is a model, so no model is  
16 completely accurate. So I'm not sure how to answer  
17 that other than there is always uncertainty in any  
18 model, and so it doesn't necessarily mean the  
19 calculations are inaccurate. It just means there  
20 is uncertainty built in to every model.

21          Q.       And if Dr. Reynolds' calculations are  
22 inaccurate, would you agree that your calculations  
23 in your Phase III reports would also be inaccurate?

24                  MR. RUZICKA: Objection, form.

25          A.       That may or may not be the case,

1 depending on how you are asking that question. If  
2 you are asking is the final exact number that is  
3 written down is, if she made a mathematical error,  
4 then that number would be different than what is  
5 accurate based on arithmetic.

6 If the question is are the conclusions  
7 still valid although the final number should have  
8 -- would have been 5 micrograms per liter month.  
9 One way or another, that may not be the case. It  
10 may still be -- mean that the conclusions was the  
11 same even if the number, the specific number is  
12 slightly different or it need to be revised.

13 Q. Sure. It would depend on the degree of  
14 inaccuracy, correct?

15 A. Correct.

16 Q. Have you reviewed ATSDR's water modeling  
17 reports?

18 A. Yes, at least the -- I've reviewed some  
19 of the reports. I don't know whether that's a  
20 comprehensive set of the water modeling reports.

21 Q. It would probably be listed in one of  
22 your materials considered list or supplement to  
23 those?

24 A. Yes. It should be in one of the  
25 materials considered lists.

1 Q. And you mentioned you made some changes  
2 to Dr. Reynolds' calculations but that you used --  
3 in some instances, but that you used them as a  
4 starting point. Is that a fair summary?

5 A. I don't know that I made changes. It  
6 was more if there was a situation where her  
7 calculation was not available, for the purposes of  
8 my opinion I -- in some instances I think I  
9 performed my own calculations.

10 Q. Okay. And regardless, that yielded an  
11 estimated amount of exposure for each Plaintiff for  
12 the chemicals at issue, correct?

13 A. Correct, from an ingestion source, like  
14 these are based on estimates of ingestion and  
15 don't, I think, fully take into account other  
16 routes of exposure.

17 Q. Right. Inhalation or dermal exposures?

18 A. Correct.

19 Q. And then you took those estimates and  
20 compared them to data from some studies to see if  
21 those Plaintiffs were exposed to sufficient levels  
22 of the chemicals at issue to increase their bladder  
23 cancer risk. Is that a fair statement?

24 A. I think the most accurate way is that I  
25 compared their estimates of exposure to exposures

1 that have demonstrated to be -- to have  
2 demonstrated an elevated measure of association  
3 with bladder cancer in various studies, in  
4 particular studies that evaluated water system  
5 contamination. Most of those are Camp Lejeune  
6 studies, although I reference another non-Camp  
7 Lejeune water system contamination study.

8 Q. That would be the Aschengrau 1993 study?

9 A. Correct.

10 Q. And just to go through those studies in  
11 your Phase III reports, those studies included Bove  
12 2024, the cancer incidence study, correct?

13 A. Yes.

14 Q. And they included Bove 2014, the Marines  
15 mortality study?

16 A. Yes.

17 Q. And they included ATSDR 2018, the  
18 morbidity study?

19 A. Yes.

20 Q. And they included Aschengrau 1993, as we  
21 just mentioned?

22 A. Yes.

23 Q. And they included Hadekhale 2017?

24 A. Yes, although I -- I'd separate studies  
25 that are primarily inhalational from the -- the

1 ones we just discussed are ones that have primarily  
2 ingestion or water system contamination. Hadkhale  
3 is primarily an inhalational study.

4 Q. Correct, and another inhalational study  
5 was Lynge 2006?

6 A. Correct.

7 Q. And then if you turn to page -- I will  
8 just use Criswell. It's page 4 of Hatten Exhibit  
9 39. You see under Inhalational Studies, and if you  
10 go to the last sentence, it reads, quote, "Finally,  
11 an Italian air pollution study of exclusively  
12 inhalational exposures indicated an association  
13 only in the medium tertile of geographically  
14 segmented estimates, 1.1 to 1.8 micrograms per  
15 meter cubed equals HR 1.16 of benzene air  
16 pollution. Hadkhale 2017."

17 Did I read that correctly?

18 A. I think you read that correctly,  
19 although that may be an incorrect reference to this  
20 study. I would have to look at my general  
21 causation report to refresh my memory on what the  
22 actual study name was.

23 Q. Was there any chance it was -- and I'm  
24 not going to pronounce this correctly, but  
25 Collarile 2017, C-o-l-l-a-r-i-l-e?

1           A.     I don't recall. I would have to look at  
2 my general causation report. I believe I discussed  
3 the study in that.

4           Q.     Okay. You agree that's just a typo  
5 there?

6           A.     Correct. I don't think that is the  
7 appropriate study that's referenced. There is one  
8 I discuss in my general causation report that is  
9 the appropriate reference.

10           THE VIDEOGRAPHER: I'm sorry to  
11 interrupt. The Zoom dropped. I don't know  
12 how relevant that is. It is trying to  
13 reconnect.

14           MR. ORTIZ: Why don't we just go off  
15 the record for a second.

16           THE VIDEOGRAPHER: The time is 9:36.  
17 We are off the record.

18                   (Discussion was had off the  
19 record.)

20           THE VIDEOGRAPHER: The time is  
21 9:41 a.m. We are back on the record.

22 BY MR. ORTIZ:

23           Q.     Dr. Hatten, sticking with Criswell,  
24 which is Hatten Exhibit 39, on pages 4 to 5. Do  
25 you see the last paragraph there?



1 A. Yes. Can I go back to your last --

2 Q. Yes, yes.

3 A. -- question though. I think we spoke  
4 earlier about the Yu study. This is where the Yu  
5 study would also be informative in these reports.  
6 It's a study of primarily low-dose inhalational  
7 exposures of benzene in addition to other, a few  
8 other compounds that demonstrated a statistically  
9 significant increase in bladder cancer with  
10 interquartile range, 0.05 parts per billion.

11 Q. Okay. So you would put the Yu study in  
12 that inhalational studies paragraph if you had it  
13 available to you when you were doing this report;  
14 is that your testimony?

15 A. Yes, that is correct.

16 Q. Okay. Going back --

17 A. Sorry. And the same for each, each of  
18 the Plaintiff reports.

19 Q. Okay. Going back to pages 4 to 5, the  
20 final paragraph, you agree that there are  
21 references to EPA 2011, the toxicological profile  
22 for TCE, and EPA 2024, the ban on TCE and PCE,  
23 correct?

24 A. Yes, there are references.

25 Q. But you don't pull data from those

1 documents like you do the other documents we have  
2 mentioned so far?

3 A. The other documents we have discussed  
4 are all epidemiologic studies, and these are  
5 government, governmental regulatory statements.

6 Q. And aside from the studies that we've  
7 discussed, your Phase III reports do not expressly  
8 cite any other studies, correct?

9 A. Correct.

10 Q. How did you select these specific  
11 studies to use in your Phase III reports?

12 A. These were studies of exposures to the  
13 compounds of interest that demonstrated  
14 associations with bladder cancer as an outcome,  
15 elevated measures of association with bladder  
16 cancer as an outcome.

17 Q. So is it fair to say that you were  
18 looking for exposures to TCE, PCE, vinyl chloride  
19 or benzene where there were elevated measures of  
20 association? Is that -- have I recapped that  
21 correctly?

22 A. Where there is also a specific exposure  
23 metric within the study, just a qualitative yes,  
24 there was an exposure or no, there was not.

25 Q. So something, some sort of exposure

1 metric that you can compare to your calculations in  
2 your reports?

3 A. Yes, that's correct.

4 Q. And you used Bove 2024, the cancer  
5 incidence study, correct?

6 A. That's one of the studies, yes.

7 Q. And you are aware of Bove 2024, the  
8 mortality study?

9 A. Yes, I've reviewed that study as well.

10 Q. Why didn't you use that study?

11 A. I think I just explained that I looked  
12 at the studies where there was a elevated measure  
13 of association with bladder cancer. I don't  
14 believe in that study there was one demonstrated.

15 Q. And you reviewed the United States  
16 expert Dr. Julie Goodman's general causation report  
17 on bladder cancer, correct?

18 A. Yes, I've reviewed that report.

19 Q. And you agree that she reviewed a large  
20 number of studies concerning the relationship, if  
21 any, between these chemicals at issue and bladder  
22 cancer?

23 MR. RUZICKA: Objection to form.

24 Q. You can answer.

25 A. She reviewed a large number of studies,

1 that she and her team reviewed a large number of  
2 studies in constructing her report, is my  
3 understanding. But I've read her report and read  
4 her deposition, I think, and those are -- that's  
5 all the direct knowledge I have of her opinions.

6 Q. Okay. And you, yourself, cited a lot  
7 more studies in your own general causation report  
8 on bladder cancer than you cited in your Phase III  
9 reports, correct?

10 A. Correct. I think I've explained why I  
11 chose these studies. The focus of these reports is  
12 on examining a Plaintiff, Plaintiff's estimated  
13 exposure in the context of reported exposures in  
14 the epidemiologic literature that have an elevated  
15 measure of association with bladder cancer.

16 Q. And so is it fair to say if there was a  
17 report, that even if it had an exposure metric, if  
18 there was not a causal association with bladder  
19 cancer, you omitted that from your Phase III  
20 reports, correct?

21 A. It is not omitted. It's just a -- that  
22 was not the focus of these reports. These reports  
23 were focused on comparing reported measures of  
24 association that are elevated measures of  
25 association with bladder cancer and Plaintiffs'

1 specific exposures. I discuss, I think, the total  
2 body of literature in my general causation report.

3 Q. Sure. I understand that you discussed  
4 more studies in your general causation report, but  
5 in your Phase III reports you would agree that you  
6 don't cite studies even if they had exposure  
7 metrics that did not have positive associations  
8 with bladder cancer; isn't that correct?

9 A. Yeah, I think that's correct, and I have  
10 been pretty transparent about that.

11 Q. And then based on those comparisons, you  
12 opined about whether each Plaintiff was exposed to  
13 exposed to levels recognized to be hazardous to  
14 humans, correct --

15 A. Correct.

16 Q. -- or human health?

17 A. Correct.

18 Q. And then you also opine about whether  
19 Dr. Reynolds' exposure calculations for each  
20 Plaintiff are substantial or de minimis?

21 A. Correct.

22 Q. And is there a difference between those  
23 two categories?

24 A. I think they represent different  
25 considerations. One is saying that there is

1 published literature that -- and that's levels of  
2 exposures that are recognized to be hazardous to  
3 human health. There is published literature with  
4 an exposure of this magnitude that has an  
5 association with bladder cancer as an outcome.

6 The other is saying it's a question of  
7 whether these exposures are -- are large enough to  
8 be a consideration when evaluating a patient or  
9 would be large enough to be a consideration when  
10 evaluating a patient.

11 Q. And what would be a de minimis exposure  
12 as opposed to a substantial exposure?

13 A. I think there is a high degree of  
14 correlation between the two. Hypothetically, and  
15 I'm not speaking specifically here, if you had an  
16 exposure that was a -- for example, thought to be  
17 primarily inhalational but we don't have good  
18 modeling for it, that it becomes a qualitative  
19 decision whether that is a substantial exposure or  
20 de minimis exposure. In practicality, for all of  
21 these Plaintiffs, the ingestion routes and  
22 estimations met the level of a substantial  
23 exposure.

24 Q. So you just refer to it being in some  
25 cases a qualitative decision. By "qualitative," do

1 you mean that it would not be defined by the  
2 numbers?

3 A. It would mean you would have to take  
4 into account what the estimates for ingestion  
5 exposure are and consider if it's possible to  
6 translate those into -- this is just a hypothetical  
7 example for -- that I referred to before, to say is  
8 there enough -- is there a way to translate that  
9 into a presumed inhalational exposure and whether  
10 that is a de minimis or a substantial exposure.

11 In all of these cases, speaking  
12 concretely about the reports I've submitted, I  
13 think the ingestion exposure estimates are  
14 sufficient to meet a substantial exposure.

15 Q. Would -- in a situation where it became  
16 a qualitative decision, would it require subjective  
17 judgment to determine whether it was a de minimis  
18 or substantial exposure?

19 MR. RUZICKA: Objection, form.

20 A. I don't think it would be completely  
21 subjective. There are -- it would depend on the  
22 specific facts of the exposure you are evaluating  
23 and how much evidence there is surrounding --  
24 again, if we are talking about the same  
25 hypothetical evidence surrounding translation of a

1 inhalational dose to a -- or an oral or water  
2 system exposure to a presumed inhalational dose and  
3 the confidence you have in that translation.

4 Q. Can you define the point at which an  
5 exposure becomes substantial as opposed to  
6 de minimis?

7 A. I think for a ingestion exposure -- for  
8 an ingestion exposure, I think it's easier to  
9 define what is substantial as the starting point  
10 and say we definitely know that exposures that have  
11 been expressed as levels hazardous to human health  
12 are substantial. Ones below that are -- would have  
13 to be taken on a case-by-case basis to determine  
14 whether those are substantial or not.

15 I don't -- and it would depend on the  
16 specific facts that we are discussing.

17 Q. Where do those, this language, "levels  
18 recognized to be hazardous to humans in substantial  
19 exposure," where did that language come from?

20 A. I don't know. I think it was just as  
21 part of the drafting of my report and in  
22 conversation with the attorney team, but I don't  
23 know. I don't recall the exact -- how we -- how I  
24 arrived at that specific language.

25 Q. And you referenced earlier you made



1 three assumptions in your Phase III reports,  
2 correct?

3 A. Yes. I think they are on page 2 of the  
4 reports.

5 Q. Correct, and the first one is that you  
6 assume that the modeling generated by the ATSDR are  
7 reasonable estimates of the monthly exposures in  
8 the Hadnot Point and Tarawa Terrace water systems  
9 at Camp Lejeune, right?

10 A. Yes.

11 Q. And you would agree that, and I mean no  
12 offense by this, but you lack expertise to evaluate  
13 that assumption, correct?

14 A. In some sense, yes, in the sense that I  
15 am not a -- I don't do my own water modeling when  
16 I'm evaluating a modeled exposure. However, I  
17 would not say that I lack expertise. I am a  
18 practicing toxicologist and I evaluate water  
19 modeling regularly.

20 I also have a MPH in epidemiology and  
21 biostatistics and included in that, the coursework  
22 for that I did environmental health classes and  
23 environmental toxicology classes; and so I have  
24 experience outside of these cases evaluating water  
25 modeling. That said, I don't perform my own water

1 modeling, and so I wouldn't -- I wouldn't redo  
2 water modeling myself or anything like that.

3 Q. You are not an engineer, correct?

4 A. No, I'm not an engineer.

5 Q. You are not a groundwater hydrologist,  
6 correct?

7 A. No, I'm not a groundwater hydrologist.

8 Q. You are not an environmental modeling  
9 expert, correct?

10 A. I'm an expert who evaluates  
11 environmental models and utilizes those in my  
12 practice. However, I do not perform my own  
13 environmental modeling.

14 Q. You don't construct the modeling?

15 A. Correct.

16 Q. And you said you evaluate water modeling  
17 regularly. How many times have you done that  
18 outside of this litigation?

19 A. I would guess, or this is a very rough  
20 estimate, but upwards of 20 times, but I don't  
21 know. I don't have a specific number for you.

22 Q. And what kind of occasions call for you  
23 to evaluate water modeling?

24 A. There are times when a patient will have  
25 an exposure or reported exposure and there has been

1 modeling of that exposure; and the question is  
2 whether this patient's -- whether that exposure is  
3 the cause of the patient's current symptoms, if  
4 there is any remediation that's required, if there  
5 is -- if there is any patient-specific treatment  
6 that is required based on that exposure and if  
7 there is any future surveillance or medical  
8 surveillance or followup that's required based on  
9 the estimated exposure. And so I evaluate and  
10 utilize water modeling reports in that context.  
11 That's probably the most common scenario where I  
12 use or evaluate water modeling.

13 Q. Have you evaluated water modeling of  
14 groundwater distribution systems?

15 A. Not for public utilities, but I have for  
16 smaller water systems and wells, and I'm trying to  
17 think if there are other scenarios for specific  
18 employers who have a specific water system. I  
19 can't recall a time I've evaluated for a water  
20 utility, though.

21 Q. And you didn't review the United States  
22 experts' opinions in Phase I of expert discovery in  
23 this litigation, which concerned the water modeling  
24 done by ATSDR, correct?

25 A. I'm not sure if I did or not. If so, it

1 would have been in my materials considered.

2 Q. Did you -- going back to your discussion  
3 of your evaluation of water models, did you review  
4 those other models in the context of personal  
5 injury litigation?

6 A. I have in some cases where I've seen a  
7 patient originally as a -- in my toxicology  
8 practice, and then there are times those -- they  
9 end up filing a suit later. But the majority, if  
10 not exclusively, it's always been a  
11 physician-patient relationship initially, not an  
12 appointment with the express intent of litigation.  
13 In those situations I will typically perform an IME  
14 if it's a -- or an independent medical examination  
15 if the concern is litigation-oriented initially.

16 Q. And who developed those other water  
17 models?

18 A. Various exposure scientists. I don't  
19 recall the names, the specific names of people, or  
20 industrial -- sometimes a industrial hygienist,  
21 depending on their comfort level with modeling and  
22 how complex the modeling is, but typically it's an  
23 exposure scientist.

24 Q. What does it mean for a chemical to  
25 volatilize?

1           A.     It goes from a -- typically a liquid.  
2     It can be a solid, although that's sublimation  
3     typically, but into a gas state.

4           Q.     And do you know as a top medical  
5     toxicologist whether TCE, PCE, benzene or vinyl  
6     chloride readily volatilize or not?

7           A.     I think all of them volatilize or are  
8     volatile. I don't know. I think it depends on  
9     what you define as readily to determine whether  
10    they are -- they readily volatilize or become  
11    volatile. They are all capable of transforming  
12    into or transferring into a gas state, though.

13          Q.     And they are all classified as volatile  
14    organic compounds or VOCs, correct?

15          A.     Correct.

16          Q.     And are you aware that ATSDR's water  
17    modeling did not take account of the possible  
18    volatilization of TCE, PCE, benzene or vinyl  
19    chloride?

20          A.     My understanding is that the modeling is  
21    modeling for concentrations in the water system  
22    itself, and so it's just looking at the water  
23    system itself in isolation.

24          Q.     Your second assumption, you assumed that  
25    deposition testimony and available records

1 accurately reflect times and locations on base for  
2 an individual plaintiff, correct?

3 A. Correct.

4 Q. And you agree that time and location on  
5 base are important variables to exposure?

6 A. Those are factors that I think play into  
7 eval- -- or estimating an exposure.

8 Q. And you may recall testifying at your  
9 last deposition, but the levels of contaminants  
10 varied over time at Camp Lejeune, correct?

11 A. That's my understanding.

12 Q. Would you agree that memories fade over  
13 time?

14 MR. RUZICKA: Objection, form.

15 BY MR. ORTIZ:

16 Q. You can go ahead and answer.

17 A. I'm not really sure how to answer that,  
18 but that may or may not be true depending on the  
19 specific memory in general. More recent events  
20 tend to be recalled more accurately, but that is a  
21 very general statement.

22 Q. And you agree that generally records may  
23 have errors or typos in them?

24 MR. RUZICKA: Objection to form.

25 A. That's correct. Records may have errors

1 or typos in them. I don't have a way of evaluating  
2 that, though.

3 Q. And your third assumption, you assume  
4 that Dr. Reynolds' exposure dose calculations are  
5 sufficiently reliable for purposes of your analyses  
6 in your Phase III reports, correct?

7 A. Yes.

8 Q. Did you do anything to investigate the  
9 accuracy of that assumption?

10 A. I looked at the estimated exposure  
11 tables she constructed to ensure that her  
12 calculations were similar or exactly the same as  
13 mine if I tried to reconstruct them; and I don't  
14 know, I don't recall if I kind of double-checked  
15 the work for every -- every patient, but I did it  
16 for a number of patients -- or a number of  
17 Plaintiffs.

18 Q. So am I understanding you correctly that  
19 you reconstructed Dr. Reynolds' calculations for  
20 each of these bladder cancer Plaintiffs or at least  
21 some of them?

22 A. I think I looked at the way she  
23 calculated it to make sure that it made sense and  
24 that the numbers were like the arithmetic was  
25 correct.

1 Q. And are those calculations contained in  
2 the appendices in your Phase III reports?

3 A. I think I list the -- I have a table  
4 with the cumulative report or cumulative exposure  
5 metrics, and those are the calculations I was  
6 discussing, so...

7 Q. Are there any other notes or documents  
8 that contain those calculations?

9 A. Not that I recall.

10 Q. Do you have any spreadsheets or anything  
11 like that that contain those calculations?

12 A. They were printed into a PDF and as just  
13 a -- for -- for the report.

14 Q. Correct, but are there native  
15 spreadsheets electronically existing on your  
16 computer with those calculations?

17 A. I don't -- I don't know if I retained  
18 those or not. They were draft, part of a draft  
19 report, and I don't typically keep old draft  
20 versions.

21 Q. Do you think you deleted those?

22 MR. RUZICKA: Objection to form.

23 A. Likely, but my typical practice is not  
24 to keep draft versions of my report, and so I  
25 likely deleted those, but I don't -- I don't



1 recall.

2 Q. So you are not sure if on your computer  
3 as it sits right now if there are electronic copies  
4 of any spreadsheets containing your calculations  
5 attempting to reconstruct Dr. Reynolds'  
6 calculations; is that a fair summary?

7 A. I don't know that that's completely fair  
8 in the sense that I wasn't trying to reconstruct  
9 her calculations. I was just evaluating the  
10 formula she used to arrive at her calculations.

11 I -- to the best of my knowledge, I do  
12 not have spreadsheets that contain those. I think  
13 they were printed off as or transformed into PDFs  
14 and printed off and scanned; and like I said, I  
15 don't typically keep draft versions of my report.

16 Q. Did you ever give those spreadsheets to  
17 your counsel, to Plaintiffs' counsel?

18 A. No.

19 Q. You just gave them the final PDF?

20 A. Correct, or a -- correct, yeah.

21 Q. And you reviewed the transcript, the  
22 rough draft transcript of the deposition of  
23 Dr. Reynolds?

24 A. Yes, I did.

25 Q. Did you review the reports of the United

1 States expert Julie Lekine [phonetic]?

2 A. Yes, I did.

3 Q. Is that on a materials considered list  
4 somewhere?

5 A. It should be. I don't know if it is or  
6 not.

7 Q. And did you review the reports of United  
8 States expert Dr. Lisa Bailey?

9 A. Yes.

10 Q. And is that on a materials considered  
11 list somewhere?

12 A. I don't know if it is or not, but it  
13 should be if it isn't.

14 Q. And these three assumptions, are these  
15 the only assumptions that you made in your Phase  
16 III reports?

17 A. I believe so. These are the explicit  
18 assumptions I had set out at the beginning.

19 Q. Did the attorneys tell you to make these  
20 three assumptions?

21 MR. RUZICKA: Objection, form. I am  
22 going to direct you not to answer that  
23 because that is a direct correspondence  
24 between attorneys and expert counsel protected  
25 by CMS 17.

1 MR. ORTIZ: I don't believe CMS 17 or  
2 Federal Rule of Civil Procedure 26 protects  
3 communications related to assumptions on which  
4 he relied. We can go off the record and  
5 discuss, but I think it's a fair question for  
6 me to ask and I'm entitled to that.

7 MR. RUZICKA: You can ask him about  
8 what assumptions he relied upon or were  
9 provided, but the question you asked is did we  
10 tell him, which would be a different question.

11 MR. ORTIZ: I think I'm entitled to  
12 communications about the assumptions that he  
13 made. If he was instructed to make those  
14 assumptions, I think I'm entitled to that  
15 under CMS 17.

16 MR. RUZICKA: I am fine with you  
17 asking the question if he received any  
18 instructions from counsel, but the way you  
19 asked the question was a little bit different.  
20 So if you want to rephrase it, we can probably  
21 get past it.

22 MR. ORTIZ: Okay. Did you -- let me  
23 try to do that.

24 BY MR. ORTIZ:

25 Q. Were you -- did you receive those

1 assumptions from counsel?

2 A. No.

3 Q. And do you agree that you calculated  
4 each Plaintiff's cumulative exposure?

5 A. In the majority of cases I relied on  
6 Dr. Reynolds' calculation of cumulative exposure.

7 Q. And the four categories were cumulative  
8 micrograms per liter per months, cumulative  
9 consumption of total micrograms, cumulative  
10 consumption and total micrograms based on ATSDR  
11 assumptions and cumulative consumption of total  
12 micrograms based on deposition; or it's abbreviated  
13 FM, but I believe it stands for field manual  
14 exposure assumptions. Correct?

15 A. I believe those were the cumulative  
16 estimates that Dr. Reynolds produced for the  
17 majority of these patients.

18 Q. And, yeah, you anticipated my next  
19 question. Those came from Dr. Reynolds?

20 A. Yes.

21 Q. Can you explain your understanding of  
22 the third category, the one referring to cumulative  
23 consumption in total micrograms based on ATSDR  
24 assumptions?

25 A. Sorry. Which column are you asking

1 about or which --

2 Q. Yeah, sure. For the Criswell report,  
3 Exhibit 39, if you go to the last page, you see it  
4 says -- in your version it says "Chart 2: ATSDR  
5 cumulative consumption." Can you explain what --  
6 your understanding of that category?

7 A. My understanding was that Dr. Reynolds  
8 was utilizing the estimated water consumption  
9 contained in the ATSDR documents. I don't recall  
10 if that was in the public health assessment or  
11 which specific document it was, but it was  
12 published by the ATSDR for an assumption of water  
13 consumption or volume of water consumption.

14 Q. And same question as to the -- what I  
15 called the fourth category of this Chart 3. Do you  
16 see that in your Criswell report?

17 A. Yes.

18 Q. What's your understanding of that  
19 category?

20 A. My understanding is that that is  
21 Dr. Reynolds' estimation based on deposition report  
22 of volume of water consumed or, when that is not  
23 available, her best estimates from evaluating field  
24 manual -- military field manuals for expected -- or  
25 expected amounts of water to be consumed in various

1 settings.

2 Q. And in your opinion, is that a reliable  
3 way to represent an individual's exposure to a  
4 chemical?

5 A. That is a reliable way in my opinion. I  
6 think the exposures I used to evaluate whether it  
7 met levels that are hazardous to human health was  
8 the left-hand column here, which is the cumulative  
9 exposure, which is a much lower estimate than any  
10 of the other ones. I used in general the most  
11 conservative estimate or the -- when evaluating  
12 this.

13 Q. And do you rely on any scientific  
14 literature to support your opinion that that is a  
15 reliable way to represent an individual's exposure  
16 to a chemical?

17 A. Are you talking about column 3 or  
18 column 1 or column 4 or column 1?

19 Q. All the columns.

20 A. These are reconstructions of a --  
21 various ways of -- sorry. These are various ways  
22 of estimating volume of exposure or volume of water  
23 ingested; and it is using that to then estimate a  
24 cumulative exposure.

25 There are various ways of estimating

1 your volume of exposure, and based on what I know  
2 about these Plaintiffs, these are all reasonable  
3 ways to estimate that. Your question may have been  
4 more about the scientific literature, though, or --

5 Q. That's correct. What scientific  
6 literature are you relying on to say that those are  
7 reasonable ways to estimate exposure?

8 A. These are individual patient or  
9 individual reported exposures or they are published  
10 estimates of exposure volume. Those -- I'm not  
11 aware that there is a large body of literature that  
12 evaluates the most reliable way to reconstruct  
13 volumes of exposure, and part of the reason you do  
14 it in different ways is to have a range of  
15 estimates. This is typical methodology that at  
16 least in my experience for evaluating exposure in a  
17 situation like this. I don't know if that answers  
18 your question or not.

19 Q. Let me ask you this: Can you identify  
20 as you sit here now a specific reference in the  
21 scientific literature that would support your  
22 opinion that these are reliable ways to reconstruct  
23 an individual's exposure to a chemical?

24 MR. RUZICKA: Object to form.

25 A. I couldn't provide you a specific

1 reference at the moment.

2 Q. And micrograms per liter per month, the  
3 first category, is a unit describing concentration  
4 and the other three are all units describing total  
5 mass; is that correct?

6 A. Correct.

7 Q. In your clinical practice as a medical  
8 toxicologist and emergency physician, have you ever  
9 applied the methodology that you are using in your  
10 Phase III reports?

11 A. Could you be more specific about what  
12 specific methodology you are asking about?

13 Q. Sure. Have you ever attempted to  
14 reconstruct an individual's ingestion exposures to  
15 chemicals from water in units of total micrograms?

16 A. I don't recall if I have or have not  
17 directly. As I said before, I typically will rely  
18 on an exposure assessment by another expert --

19 Q. Sure.

20 A. -- or -- or in the case of a treating --  
21 a patient who is being treated and someone they  
22 have hired or their physician has consulted with.

23 Q. And you sort of anticipated my next  
24 question, which is in your clinical practice as a  
25 medical toxicologist, is it fair to say that you



1 are usually relying on exposure assessments by  
2 other experts?

3 A. It depends on the exposure. It's not  
4 always the case that an exposure assessment -- an  
5 independent exposure assessment is required or an  
6 exposure modeling. However, if there was a case  
7 where a exposure or modeling is necessary, I  
8 typically will have another expert do that work.

9 Q. And you don't have a degree in  
10 environmental science or engineering, correct?

11 A. Correct, I do not.

12 Q. You don't have a degree of chemistry,  
13 correct?

14 A. Correct, I do not.

15 Q. You don't have a degree in chemical  
16 engineering, correct?

17 A. Correct, I do not.

18 Q. You don't have a degree in industrial  
19 hygiene, correct?

20 A. Correct, I do not.

21 Q. And you performed a literature search  
22 when you prepared your general causation report on  
23 bladder cancer, correct?

24 A. Yes, I did.

25 Q. And did you conduct a new or updated

1 literature search when preparing your Phase III  
2 reports, or did you rely on that same prior  
3 literature search?

4 A. I primarily relied on that literature  
5 search. I do have a PubMed alert for these  
6 compounds, so I try to stay up-to-date, but I don't  
7 perform a comprehensive -- I didn't perform a fresh  
8 comprehensive search prior to formulating these  
9 reports.

10 Q. And is that something, that PubMed  
11 alert, is that something that comes passively to  
12 your email if certain search terms are hit upon?

13 A. Yes, that's correct.

14 Q. But you didn't actively go out and  
15 attempt to do a literature search since preparing  
16 your general causation report?

17 A. No. I mean, it was within a few months  
18 of the date of my, like roughly two months, right  
19 from the date of my general causation report. So  
20 that's not a -- I wouldn't consider that a large  
21 window of time.

22 Q. Yeah, no. I wasn't trying to imply  
23 that. I was just trying to confirm you didn't do  
24 anything else.

25 Are you aware that ATSDR stated that its

1 water modeling at Hadnot Point and Tawara Terrace  
2 is not specific enough to accurately estimate daily  
3 levels of volatile organic compounds or VOCs?

4 A. My understanding is it's they publish  
5 monthly estimates, estimates for the entire month.

6 Q. And I'm going to hand you Hatten  
7 Exhibit -- are we on 45?

8 A. 46.

9 Q. 46?

10 A. Yeah. 45 was the supplemental  
11 materials.

12 Q. Thank you.

13 (Exhibit 46 was marked for  
14 identification and is attached to  
15 the transcript.)

16 BY MR. ORTIZ:

17 Q. Thank you. And I'm handing you Hatten  
18 Exhibit 46. Have you ever seen this document  
19 before?

20 A. It appears to be part of the -- an  
21 appendix to the water modeling, although I don't  
22 have a way of verifying that.

23 Q. Okay. And you see the Bates numbers in  
24 the bottom right-hand corner that say  
25 CLJA\_ WATERMODELING?

1 A. Yes.

2 Q. Can you turn to page -- it's A181,  
3 CLJA\_WATERMODELING\_01-000942783.

4 A. Yes.

5 Q. Are you on that page?

6 And about midway down the page it says,  
7 quote, "Can ATSDR water modeling results be used to  
8 determine the concentration of VOCs that my family  
9 and I were exposed to on a daily basis?"

10 And then the answer reads, "No.  
11 The available data are not specific enough to  
12 accurately estimate daily levels of VOCs (PCE, TCE,  
13 1,2-tDCE, VC and benzene) at the Hadnot Point,  
14 Holcomb Boulevard study area. The modeling  
15 approach used by ATSDR provides a high level of  
16 detail to estimate monthly VOC concentrations in  
17 finished water at the Hadnot Point Water Treatment  
18 Plant and Holcomb Boulevard housing areas. It is  
19 assumed that simulated monthly concentrations of  
20 VOCs represent a typical day during a month. The  
21 actual level that a person may have been exposed to  
22 could have been higher or lower than the estimated  
23 average."

24 Did I read that correctly?

25 A. Yes, you did.

1 Q. And is it your understanding that  
2 Dr. Reynolds used ATSDR's water models to estimate  
3 daily exposure levels?

4 A. My understanding is that some of her  
5 modeling attempted to estimate at least partial  
6 month exposures. I don't know if it was individual  
7 days or not. It depends on kind of how you  
8 consider a proportional exposure as individual days  
9 or not.

10 Q. Sure. And if you go to page 6 of the  
11 Raymond report, which is Hatten Exhibit 40 -- and,  
12 I'm sorry, I know you have a lot of papers over  
13 there.

14 And do you see down at the bottom of  
15 that chart that says "Exposure Dates," do you see  
16 12/1/65?

17 A. Yes.

18 Q. And then if you go to the next page, if  
19 you go down to the bottom it says -- of the chart  
20 on the left, it says, "Total days, 1. Exposure  
21 location, Hadnot Point," and then it gives an  
22 estimate for TCE. Correct?

23 A. Correct. My understanding of what you  
24 are talking about is this is an estimate for a  
25 total month, then there is a sensitivity analysis

1 that includes a proportion of the month that the  
2 Plaintiff reported being on base. So it's a  
3 proportional month analysis, is the sensitivity  
4 analysis, which, depending on how you interpret  
5 things, could or not be construed as an individual  
6 day versus a portion of a month.

7 Q. And are you aware that ATSDR stated that  
8 it shows conservative health protective data  
9 interpretation options that were estimates of  
10 exposure in the upper end of the range for  
11 recommended values?

12 A. Could you either repeat that or show me  
13 where you're -- the quote is from?

14 Q. Sure. Are you aware that ATSDR stated  
15 that it shows conservative health protective data  
16 interpretation options? I will make it shorter.

17 A. I don't recall their -- the specific  
18 considerations that they expressed.

19 My understanding is that this is the --  
20 their modeling is the best estimate that we have of  
21 levels of contamination at Camp Lejeune, but I  
22 don't recall the considerations they may have  
23 expressed.

24 Q. In your practice as a medical  
25 toxicologist, do you typically express dose as the

1 weight of a chemical per unit of body weight?

2 A. It depends on the toxin we are  
3 discussing, so...

4 Q. Can you identify a toxin where you would  
5 not do it that way?

6 A. Yes.

7 Q. What?

8 A. So just as an example off the top of my  
9 head, for example, radiation is oftentimes  
10 expressed in grays or rads and doesn't take body  
11 weight into consideration.

12 Q. Can you think of a toxin where you would  
13 express dose as the weight of a chemical per unit  
14 of body weight?

15 A. Yes. I mean, there are a number of or  
16 there are a number of compounds that could  
17 potentially be expressed that way. It's -- are you  
18 asking for a specific example, or are you asking  
19 for a -- just whether that is something that is  
20 expressed that way?

21 Q. I'm just asking, is that a typical way  
22 of expressing dose?

23 A. It is a way of expressing dose, but  
24 again, it depends on the toxin.

25 Q. And can you identify a toxin that you

1 ingest where you would not express dose as a unit  
2 per body weight?

3 A. Yeah, there are a number of toxins. For  
4 example, asbestos is typically expressed as fibers.  
5 We will often as toxicologists evaluate a total  
6 dose in a poisoning situation without considering  
7 body weight. We have what we consider threshold  
8 doses for various exposures. It really is  
9 dependent on what -- the individual toxin you are  
10 discussing.

11 Q. In your practice as a medical  
12 toxicologist, have you ever had to express dose for  
13 TCE?

14 A. I don't recall if I have or have not had  
15 to express a specific dose outside of this  
16 litigation.

17 Q. Same question for PCE.

18 A. Again, I don't recall that I have or  
19 have not for specifically for PCE outside of this.

20 Q. Same question for benzene.

21 A. I don't recall whether I have had to  
22 express a dose specifically for benzene.

23 Q. Same question for vinyl chloride.

24 A. And I don't recall whether I've had to  
25 express a dose specifically for vinyl chloride.



1           Q.     Do you agree that Dr. Reynolds did not  
2     express dose in terms of weight of chemical per  
3     unit of body weight?

4           A.     I did not evaluate her entire report. I  
5     don't know if she expressed a dose differently in a  
6     different portion of the report. The calculations  
7     that -- of hers that I reviewed did not express  
8     exposures in a mass per unit of body weight.

9           Q.     And she used units of total micrograms,  
10    correct, as we said before?

11          A.     As one of her -- one of the ways she  
12    expressed an exposure.

13          Q.     And those are units of total mass,  
14    correct?

15          A.     You are saying is micrograms a unit of  
16    total mass?

17          Q.     Correct.

18          A.     Yes.

19          Q.     And you agree that a unit of total mass  
20    alone does not count for a person's body weight?

21          A.     If you are discussing a toxin, like a  
22    total mass of a toxin, that does not account for  
23    body weight. You can express a person's weight in  
24    micrograms, if you want.

25          Q.     Right, right. I'm talking about a toxin

1 or an agent.

2 A. Correct. If you are just expressing the  
3 total mass of a toxin, that is not -- does not  
4 integrate a person's body weight into a  
5 calculation.

6 Q. And as a medical toxicologist, do you  
7 agree that a person's body weight is important to  
8 accurately determine that person's exposure to a  
9 chemical?

10 A. Again, it depends on the toxin you are  
11 discussing.

12 Q. We discussed that a little bit earlier?  
13 We discussed that a little bit earlier?

14 A. Yes. We at least had some similar  
15 questions about that.

16 Q. Let me ask you this way: Would you  
17 agree that a single beer would have a different  
18 effect on a person who weighs a hundred pounds than  
19 on a person who weighed 300 pounds?

20 A. All else being equal, you will have a  
21 different peak serum alcohol concentration with  
22 different body weights. That does not necessarily  
23 mean that the clinical effects are going to be  
24 different. There are patient-specific factors such  
25 as tolerance, other medications they are taking

1 that greatly impact how the degree of clinical  
2 effects that a specific exposure may have.

3 Q. So is it your testimony that all things  
4 being equal, a person who weights 300 pounds and a  
5 person who weighs 100 pounds, they both drink one  
6 beer, the same alcohol content in that beer, the  
7 effects are not going to be -- are going to be the  
8 same. Is that your testimony?

9 MR. RUZICKA: Objection, form.

10 A. No, that wasn't at all my testimony.

11 Q. Okay. Then what was it?

12 A. The testimony was that if the exposure  
13 was the same, they drank the beer the same amount  
14 of time, it was the same beer, the peak serum  
15 alcohol concentration will likely be different  
16 between a 300-pound person and a 100-pound person.  
17 That is not the same as saying that their -- the  
18 clinical effects are going to be the same.

19 You can have a much higher peak serum  
20 alcohol concentration with minimal to no effects in  
21 somebody who has a lot of tolerance or in somebody  
22 who is also receiving IV fluids that dilutes things  
23 quickly. These are just examples. Or versus  
24 somebody who weighs a hundred pounds but drinks  
25 heavily every day, they may be very tolerant versus

1 a 300-pound person who is alcohol naive. There are  
2 patient-specific factors that greatly affect,  
3 greatly impact the clinical effects of an exposure.

4 Q. And would you agree that your  
5 calculations in your Phase III reports do not  
6 account for the body weight of any of these five  
7 Plaintiffs?

8 A. Correct, I do not have -- I'm not aware  
9 of the body weights of any of these Plaintiffs. I  
10 don't believe that's information I was -- that was  
11 available to me.

12 Q. That's just information that's not  
13 available so far as you know?

14 MR. RUZICKA: Objection, form.

15 A. At least to me. I don't know if it's  
16 available in other senses. As I said, I haven't  
17 reviewed medical records for any of these patients.  
18 This is strictly an exposure calculation.

19 MR. ORTIZ: Sure. Why don't we take a  
20 break now.

21 MR. RUZICKA: Sure.

22 THE VIDEOGRAPHER: The time is 10:32.  
23 We are off the record.

24 (Recess taken.)

25 THE VIDEOGRAPHER: The time is

1           10:44 a.m. We are back on the record.

2       BY MR. ORTIZ:

3           Q.       Dr. Hatten, I want to go back to Hatten  
4       Exhibit 39, your Phase III report for Mr. Criswell  
5       and we are going to spend some time on -- probably  
6       the most time on this report and then hopefully  
7       less time on the others.

8           A.       Okay.

9           Q.       Do you agree that Mr. Criswell was at  
10      Camp Lejeune between January 1975 and March 1997 --  
11      1977?

12          A.       That's my understanding.

13          Q.       And are you aware that he would have had  
14      some departures from leave or deployments within  
15      that range?

16          A.       I don't recall the details of that.

17          Q.       But generally speaking?

18          A.       Again, I just don't recall the details.

19          Q.       And are you aware that he lived at Camp  
20      Geiger until 1965?

21          A.       I don't recall the specific details of  
22      his placement on base or...

23          Q.       Did you assume that he lived at Hadnot  
24      Point from January 1965 onwards?

25          A.       I think I used whatever the assumptions

1       were.

2               Q.       And you are looking at the appendix to  
3       the report, correct?

4               A.       Correct.

5               Q.       And do you see anywhere where it states  
6       the location that you assumed he was at?

7               A.       I don't believe that I -- I believe this  
8       modeling includes both Hadnot Point and Tarawa  
9       Terrace. I remember there is a combined one. The  
10      bottom set of figures is combined for Hadnot point  
11      and Tarawa Terrace, and then I assumed that he  
12      spent 9.3 quarters on base.

13              Q.       Okay. And you agree that there is no  
14      sampling data for Tarawa Terrace or Hadnot Point  
15      during the time that Mr. Criswell was at Camp  
16      Lejeune, correct?

17              A.       Not that I'm aware of, but I think we  
18      discussed this earlier, that it was all roughly  
19      1980 or later.

20              Q.       Correct. So looking at Appendix A, that  
21      contains your analysis tables for Mr. Criswell; is  
22      that correct?

23              A.       Correct.

24              Q.       And is this a complete copy of your  
25      analysis tables for Mr. Criswell?

1           A.       To the best of my knowledge, yes.

2           Q.       And are these numbers originally taken  
3 from Dr. Reynolds' report concerning Mr. Criswell?

4           A.       I believe so. I don't -- I don't  
5 believe I modified them, but I don't recall  
6 specifically.

7           Q.       That was my next question, which was did  
8 you change the numbers at all. But I think before  
9 I ask that, I'm going to hand you Hatten exhibit --  
10 is it 47?

11                   MR. RUZICKA: Yeah.

12                               (Exhibit 47 was marked for  
13 identification and is attached to  
14 the transcript.)

15 BY MR. ORTIZ:

16           Q.       And do you recognize this document?

17           A.       It appears to be a report of  
18 Dr. Reynolds. As I said before, I don't think I  
19 reviewed her entire report though.

20           Q.       And for the record, this exhibit  
21 actually omits Dr. Reynolds' appendices for the  
22 non-bladder cancer Plaintiffs. I did not include  
23 that in this exhibit. But would you agree that it  
24 includes the appendices for all five bladder cancer  
25 Plaintiffs that you reviewed? And you can take a

1 minute to flip through it if you need to.

2 A. It appears to. I haven't -- if you are  
3 representing that, I will assume that that is  
4 correct.

5 Q. Okay. I am representing that to you.  
6 Can you turn to page -- I apologize it  
7 is not numbered, but page 17 of the document.

8 A. Is that Appendix 2, the Criswell  
9 section?

10 Q. That's correct. It leads to the summed  
11 variables totals for Mr. Criswell.

12 A. Yes, I see that page.

13 Q. Are there differences between her  
14 numbers and your numbers?

15 A. The numbers appear to be slightly  
16 different for TCE and PCE at Tarawa Terrace. There  
17 is one microgram per liter month more of TCE on my  
18 table and one less for PCE on her table, and then  
19 one less vinyl chloride on her table for Tarawa  
20 Terrace, and those are then translated into the  
21 totals, that corresponding difference.

22 Q. Are there differences between her  
23 numbers in the other three columns and your numbers  
24 in those corresponding columns?

25 A. I don't -- of those -- those do appear



1 to be different.

2 Q. Can you explain why those are different?

3 A. I do not -- I'm not aware of why those  
4 are different. I don't recall making any changes.  
5 I don't know if she provided a preliminary version  
6 to me, but I don't recall any modifying these  
7 tables.

8 Q. And as you testified about earlier, your  
9 I guess, electronic copies of your calculations for  
10 Mr. Criswell you believe no longer exist on your  
11 computer. Is that correct?

12 A. I don't believe so. It's not my  
13 practice to keep those, so I would have deleted it  
14 at the time.

15 Q. Okay. So is there any other document I  
16 could look at to understand why these numbers may  
17 have changed, to your knowledge?

18 A. I mean, there may be an email from my  
19 attorneys or the attorneys that they would have  
20 forwarded Dr. Reynolds' table to me. I didn't  
21 directly correspond with her and am not aware of  
22 why there is a difference between these two.

23 Q. Okay.

24 A. One other thing is, I don't think her  
25 report has a cumulative total at the bottom,

1       whereas I inserted that in the tables I generated.

2           Q.       Correct, and you are referring to the  
3       TVOC variable?

4           A.       Correct.

5           Q.       And that's something you calculated  
6       yourself by adding up each of the four chemicals at  
7       issue?

8           A.       Correct.

9           Q.       Okay. Thank you for clarifying that.  
10           If you go back to your Criswell report  
11       on page 2, there is a section that's titled there  
12       Rationale and Methods, correct?

13          A.       Correct.

14          Q.       We have already discussed generally your  
15       methodology in the Phase III reports, correct?

16          A.       Yes.

17          Q.       And this section also sets it out?

18          A.       Correct.

19          Q.       And you state here that if a Plaintiff  
20       was exposed to a single water system that you  
21       performed a sensitivity analysis for partial months  
22       of exposure, correct?

23          A.       Correct.

24          Q.       Can you describe or what do you  
25       understand the term "sensitivity analysis" to mean?

1           A.     That is calculating the same metric in a  
2     different manner to see if different ways of  
3     calculating it substantially change your  
4     conclusions.

5           Q.     And how did you perform that sensitivity  
6     analysis?

7           A.     I didn't in this case. In this case it  
8     was --

9           Q.     Sure.

10          A.     -- solely a -- or I rely on the numbers  
11     provided by Dr. Reynolds.

12          Q.     But in cases -- and we will talk about  
13     some of those specific cases later -- where you did  
14     perform it, how did you perform it?

15          A.     I think I say accounting for partial  
16     months of exposure, so I used just a proportion of  
17     the month multiplied by the -- the proportion of  
18     the month that was reported to be exposed to that  
19     water system times the monthly concentration for  
20     that month.

21          Q.     And do you have any notes or files that  
22     reflect those calculations for that sensitivity  
23     analysis?

24          A.     They would just be on the table I  
25     produced if I did that.

1           Q.     Okay. And if I want to understand it --  
2     well, scratch that.

3                     If I wanted to understand your  
4     sensitivity analysis besides the tables and the  
5     appendices to your reports, are there any other  
6     documents to your knowledge that I could review to  
7     do that?

8           A.     No. I mean, it's just a proportion, so  
9     it was a fractional portion of the exposure for the  
10    month was documented as the total exposure for that  
11    month.

12          Q.     But you don't have like an Excel file or  
13    something like that that reflects that actual  
14    calculation, correct?

15          A.     No. It would have been built into the  
16    table, and so it's published. If it was done for  
17    any individual plaintiff, it would be in the final  
18    table, but there is not a worksheet or something  
19    like that.

20          Q.     Okay. And then you also state that if a  
21    Plaintiff was exposed to water for both Hadnot  
22    Point and Tarawa Terrace, you either relied on  
23    Dr. Reynolds' combined exposure table or a portion  
24    between Hadnot Point and Tarawa Terrace yourself,  
25    correct?

1 A. Correct.

2 Q. How did you decide which one to do?

3 A. If Dr. Reynolds' estimate was available,  
4 that was the one I used. If not -- and I don't  
5 even recall if I had to do that for any of them --  
6 then I would have apportioned it.

7 Q. Do you know if you did that in  
8 Mr. Criswell's case?

9 A. In his case I relied on the estimates  
10 from Dr. Reynolds' calculations.

11 Q. Okay. And just to be clear, if Mr. --  
12 if Dr. Reynolds' calculations for this  
13 apportionment were available, you just used that;  
14 you didn't disregard her calculations if they were  
15 available and use your own?

16 A. Correct. I relied on her calculations.

17 Q. And the next section of your Criswell  
18 report is titled Exposures, correct?

19 A. Yes.

20 Q. And then you go through different  
21 exposure metrics or categories which are time on  
22 base; TVOC, which stands for total volatile organic  
23 compounds; PCE; TCE; vinyl chloride; benzene; and  
24 inhalational studies. Is that correct?

25 A. Correct.

1 Q. And you follow the same structure for  
2 all of the reports, correct?

3 A. Correct.

4 Q. All right. I'm going to talk about each  
5 one of these with you. Okay?

6 A. Okay.

7 Q. Starting with time on base, you state  
8 that for military personnel there is increased risk  
9 of bladder cancer after seven quarters' duration at  
10 Camp Lejeune between 1975 and 1985, correct?

11 A. Correct.

12 Q. And to use your language, you actually  
13 -- you state it is an elevated measure of  
14 association, correct?

15 A. Correct.

16 Q. And then for civilians you state that a  
17 minimum exposure of 1 to 21 quarters at Camp  
18 Lejeune between October 1972 and December 1985 had  
19 an elevated measure of association with bladder  
20 cancer, correct?

21 A. Correct.

22 Q. And a quarter is equivalent to three  
23 months, correct?

24 A. Yes.

25 Q. And you are citing in support of that

1 Bove 2024, the cancer incident study, correct?

2 A. Correct.

3 Q. I'm going to hand you what was  
4 previously marked at your prior deposition as  
5 Exhibit 16, and we will just continue that just to  
6 avoid any confusion, but you recognize Hatten  
7 Exhibit 16 is a copy of Bove 2024, the cancer  
8 incidence study, correct?

9 A. Yes.

10 Q. If you turn to page 10, you will see  
11 Table 5, correct?

12 A. Yes, that's Table 5.

13 Q. And it sets out cancer outcomes by  
14 duration stationed at Camp Lejeune compared to Camp  
15 Pendleton between 1975 and 1985 for the  
16 Marines/Navy personnel subgroup. Is that correct?

17 A. Yes, correct.

18 Q. And if you go to page 11, you will see  
19 the note under the table, and it defines the medium  
20 duration group as 7 to 10 quarters, correct?

21 A. Correct.

22 Q. And for military personnel in the medium  
23 duration group for urinary bladder cancer, the  
24 hazard, the adjusted hazard ratio or HR was 1.18  
25 with a confidence interval of .095 to 1.46,

1 correct? Excuse me. Yeah, 1.46.

2 A. Correct.

3 Q. And would you agree that that confidence  
4 interval includes 1.0?

5 A. Yes, that confidence interval includes  
6 1.0.

7 Q. So would you include that that  
8 confidence interval or that finding is by  
9 traditional convention not statistically  
10 significant?

11 MR. RUZICKA: Objection, form.

12 A. I would say by traditional convention  
13 that's considered non-statistically significant.

14 Q. And do you determine statistical  
15 significance in any different way?

16 A. It's typically defined by the authors of  
17 the study and how they utilize it. There is not  
18 a -- there is not a rigid definition of statistical  
19 significance.

20 Q. But traditionally, if the confidence  
21 interval includes 1.0, it's considered not  
22 statistically significant, correct?

23 A. Traditionally, yes.

24 Q. If you go to page 12 of Hatten Exhibit  
25 16, that has Table 6, which is cancer outcomes by



1 duration employed at Camp Lejeune compared to Camp  
2 Pendleton, October 1972 to December 1975, among  
3 civilian workers, correct?

4 A. Yes, that's correct.

5 Q. And in the note at the bottom of the  
6 table, it defines the low/medium duration group as  
7 1 to 21 quarters, correct?

8 A. Correct.

9 Q. And for civilian personnel, the adjusted  
10 HR for bladder cancer was 1.18 with the confidence  
11 interval of 0.80 to 1.75, correct?

12 A. Yes, that's correct.

13 Q. And under traditional convention, that's  
14 not statistically significant either, correct?

15 MR. RUZICKA: Object to form.

16 A. Correct, under -- under the traditional  
17 definition of statistical significance.

18 Q. And the last sentence under the time on  
19 base paragraph on page 2 of your Criswell report  
20 reads, quote, "Of note, the population in this  
21 study is limited to civilian personnel who may have  
22 less intense exposures than military personnel."  
23 Did I read that correctly?

24 A. Yeah, you read that correctly. I mean,  
25 I was -- I think that statement is probably not

1 completely precise in the sense that I was  
2 referring to the second finding because they both  
3 come from the same study.

4 Q. Are you now disavowing that statement?

5 MR. RUZICKA: Objection, form.

6 A. No. I'm just clarifying that this is a  
7 reference -- they are both -- both military  
8 personnel and civilian personnel were included in  
9 the Bove 2024a study. I'm just saying that that  
10 last statement is referring to the civilian  
11 personnel finding that the language was not  
12 completely precise.

13 Q. Sure. But you are expressing in that  
14 sentence that civilian personnel may have had less  
15 intense exposures to the chemicals at issue than  
16 military personnel. Is that correct?

17 MR. RUZICKA: Objection, form.

18 A. Correct. That was -- that portion, the  
19 intensity of exposure, is accurate as written.

20 Q. And if that's the case, then why are  
21 civilian personnel who are at Camp Lejeune for one  
22 to six quarters at equivalent risk for bladder  
23 cancer as Marine personnel who have been at Camp  
24 Lejeune for seven quarters or more?

25 MR. RUZICKA: Objection, form.

1 BY MR. ORTIZ:

2 Q. You can answer my question.

3 A. Yeah, I think these are different  
4 populations in the sense that you have different  
5 groups of people who make up the two cohorts, one  
6 of military personnel and one of civilian personnel  
7 and their individual factors within those groups  
8 that may make susceptibility different to various  
9 exposures.

10 Q. But you agree that you state in the  
11 report that civilian personnel may have had less  
12 intense exposures than military personnel, correct?

13 MR. RUZICKA: Objection, form.

14 A. Correct, I state that.

15 Q. And if that's correct and Marine  
16 personnel are having more intense exposures, then  
17 why for Marine personnel who have been at Camp  
18 Lejeune for one to six quarters is there not an  
19 increased risk of bladder cancer?

20 MR. RUZICKA: Objection, form.

21 A. This is the finding based on the  
22 analysis of their data in that study. It's not  
23 a -- I don't think the study is sufficient to -- to  
24 determine the reason for a different -- it's not  
25 even a differential finding. It's just a

1 difference in the reported exposure metric in the  
2 study.

3 Q. And you didn't cite the confidence  
4 intervals that I read aloud in your Criswell  
5 report, correct?

6 A. I did not. I will also point out I was  
7 just referring to the differences in population.  
8 If you look at Table 1 and 2 that are on page 5 and  
9 6, the military personnel are approximately 20  
10 years younger than the civilian personnel.

11 We know -- this is just one example. We  
12 know age is a major factor in the development of  
13 bladder cancer; and so you may -- it may be much  
14 easier to pick up bladder cancer cases in civilian  
15 personnel, and so they are seeing -- they are  
16 seeing patients who have bladder cancer, but those  
17 haven't yet developed in the military personnel.  
18 This is just an example of a possible reason for  
19 that. It's not saying that the study clearly  
20 explains that difference.

21 Q. Sure. What is the concept of  
22 dose-response relationship?

23 A. It's typically that the more intense an  
24 exposure -- and that could be based on duration or  
25 amount or some combination -- the greater the

1 health effect.

2 Q. So would you agree that if there was a  
3 dose-response relationship, if Marines had more  
4 intense exposures than civilian personnel, we would  
5 expect more of a health effect for Marines?

6 MR. RUZICKA: Objection, form.

7 A. If the people making up the populations  
8 were identical, but that is dependent on the  
9 individual or the makeup of the individual  
10 populations. If you are talking about different  
11 populations, which it is pretty clear that the  
12 military and civilian populations are different,  
13 then that is not necessarily the case.

14 Q. Would you agree that 1.18 is not a  
15 strong positive association?

16 MR. RUZICKA: Objection, form.

17 A. I don't think it's traditionally  
18 considered a strong positive association. It is in  
19 the context of evaluating this. I think we discuss  
20 this at length in my prior deposition and my  
21 general causation report.

22 Q. Correct.

23 A. I used the framework that was set out by  
24 ATSDR with a -- that identified a elevated measure  
25 of association as greater than 1.1 and used that

1 consistently in evaluating the evidence.

2 Q. And you are referring to the statement  
3 of ATSDR in the assessment of the evidence  
4 published in 2017, correct?

5 A. I believe that was the document it was  
6 contained.

7 Q. And you recall testifying about that at  
8 your prior deposition?

9 A. Yes.

10 Q. Do you agree that the duration analyses  
11 in Hatten Exhibit 16, which is the Bove 2024 study,  
12 should be interpreted with caution?

13 MR. RUZICKA: Objection, form.

14 A. I mean, I'm not sure that -- what  
15 question are asking. I've made -- I represented my  
16 conclusions in this report. I don't think I would  
17 interpret anything that I represented here with  
18 caution.

19 Q. Let me direct you to page 11 of the Bove  
20 2024 study, and just let me know when you are  
21 there.

22 A. Yes.

23 Q. And on the right-hand column you see the  
24 paragraph, the second full paragraph that begins  
25 "using base location." Do you see that?

1           A.     Yes.

2           Q.     And it says, "Duration stationed or  
3     employed at Camp Lejeune as a proxy for cumulative  
4     exposure assumed that monthly contamination levels  
5     did not fluctuate, but this was incorrect.  
6     Therefore, the duration analyses should be  
7     interpreted with caution."

8                     Did I read that correctly?

9           A.     You read that correctly.

10          Q.     So that was the author's own statement?

11          A.     That was the author's statement.

12          Q.     I want to go to TVOC next and in your  
13     Criswell report. As you said earlier, Dr. Reynolds  
14     actually did not calculate an exposure metric or  
15     number for TVOC for these Plaintiffs, correct?

16          A.     Correct, she did not.

17          Q.     And you did that yourself?

18          A.     Yes, although I think I make a caveat  
19     that, if you look on page 3, in the last sentence  
20     of that section, that Dr. Bove includes DCE in his  
21     TVOC calculation, so any estimate that I produced  
22     was an underestimate compared to what Dr. Bove  
23     estimated.

24          Q.     And you testified earlier that you  
25     haven't expressed any opinion in your reports about

1 the possible health effects, if any, of DCE,  
2 correct?

3 A. I have not. I've never expressed the  
4 opinion that DCE exposure is a cause of bladder  
5 cancer that I'm aware of, but I did not  
6 specifically address that in my report outside of  
7 this.

8 Q. And Mr. Criswell fell into the medium  
9 exposure group for TVOC, correct?

10 A. Correct.

11 Q. And that medium exposure group was  
12 defined as cumulative exposures to more than 4,600  
13 micrograms per liters per month, correct?

14 A. Correct.

15 Q. And that's a unit describing  
16 concentration, correct?

17 A. Correct.

18 Q. And you cite and support Bove 2014, the  
19 Marine mortality study, correct?

20 A. Correct.

21 Q. I'm going to hand you what was  
22 previously marked as Hatten Exhibit 12 at your  
23 prior deposition. And do you recognize Hatten  
24 Exhibit 12 as a copy of Bove 2014a?

25 A. It appears to be, although it does not



1 include the supplemental files.

2 MR. ORTIZ: I'm getting to that.

3 Hatten Exhibit 49?

4 MR. RUZICKA: I will just confirm  
5 that. It might be 48.

6 THE WITNESS: I think the Reynolds was  
7 47.

8 MR. ORTIZ: So 48. Thank you.

9 (Exhibit 48 was marked for  
10 identification and is attached to  
11 the transcript.)

12 BY MR. ORTIZ:

13 Q. And do you recognize Hatten Exhibit 48  
14 as a copy of Additional File 2 to Bove 2014, the  
15 mortality study?

16 A. Yes.

17 Q. And for the record, I've added the  
18 highlighting of the bladder cancer results  
19 throughout. Do you see that?

20 A. Yes.

21 Q. And are you aware that Bove 2014 uses  
22 the sum of the mean monthly concentrations modeled  
23 by ATSDR for residents only?

24 A. That's my understanding of the  
25 methodology.

1 Q. And are you -- go ahead.

2 A. In expressing an exposure, a numerical  
3 exposure.

4 Q. And are you aware that Dr. Reynolds used  
5 the sum of the mean monthly concentrations modeled  
6 by ATSDR for residents and work locations, if  
7 applicable?

8 A. I think it...

9 Q. Would you need to review Dr. Reynolds'  
10 report to know?

11 A. I just can't recall if it was for every  
12 plaintiff that she evaluated that she did that.

13 Q. Sure. You think it was for some?

14 A. At least for some, yes.

15 Q. And do you agree that where she did  
16 that, her methodology differed from Bove 2014?

17 MR. RUZICKA: Objection, form.

18 A. It -- it could have, although I don't  
19 know if it did in every case.

20 Q. What do you mean by that?

21 A. In the sense that because this was only  
22 a study of military personnel, I don't know if her  
23 military -- every military person that she actually  
24 apportioned different work locations.

25 Q. And in your Phase III reports you relied

1 on Bove 2014 and an Additional File 2, correct?

2 A. I mean, this is part of this study, so  
3 it's not a separate --

4 Q. Right. I'm not implying that it is.

5 A. Yes, I relied on the study, including  
6 the additional files.

7 Q. Correct. And would you agree that many  
8 of the hazard ratio or HR estimates in Bove 2014  
9 lacked precision as indicated by wide confidence  
10 intervals?

11 MR. RUZICKA: Objection, form.

12 A. I think the confidence intervals are  
13 what they are and it's up to the reader to  
14 interpret them.

15 Q. And do you agree that lack of precision  
16 in the HR estimates indicates uncertainty about the  
17 actual magnitude of the effects of the drinking  
18 water exposures on specific causes of death?

19 MR. RUZICKA: Objection, form.

20 A. No, I wouldn't agree with that. I would  
21 say it reflects the range of point estimates that  
22 may come from that population.

23 Q. I'm going to direct your attention to  
24 page 13 of Bove 2014. Would you tell me when you  
25 are there, please.

1 A. Yes.

2 Q. And starting from the bottom of the  
3 left-hand corner, it reads, quote, "Many HR  
4 estimates lack precision, as indicated by wide  
5 confidence intervals, due to small numbers of  
6 specific causes of death. Lack of precision in the  
7 HR estimates indicates uncertainty about the actual  
8 magnitude of the effects of the drinking water  
9 exposures on specific causes of death."

10 Did I read that correctly?

11 A. You read that correctly.

12 Q. And that is what the authors stated?

13 A. Correct, that's what the authors stated  
14 in this study.

15 Q. And do you agree that the total number  
16 of bladder cancer cases at Camp Lejeune for Bove  
17 2014 was 11?

18 A. I would have to review the table to  
19 confirm that.

20 Q. If you review Additional File 2, do you  
21 see under the first page it says "bladder cancer"  
22 and in parentheses it says "N equal 11"?

23 A. Yes, that's correct.

24 Q. So the total number of bladder cancer  
25 cases at Camp Lejeune for Bove 2014 was 11?

1           A.     I believe so. Yeah, per this table, I  
2 believe that's correct.

3           Q.     Okay. And going back to your Criswell  
4 report, you state that the HR for medium TVOC  
5 exposure was 3.33, correct? And that's at the top  
6 of page 3 of your Criswell report.

7           A.     Yes, that's correct.

8           Q.     And you don't cite the confidence  
9 interval, correct?

10          A.     No, I do not.

11          Q.     And if you go to Additional File 2, you  
12 see the medium exposure category on page 1 for  
13 TVOC, the HR is 3.33; the lower confidence interval  
14 is 0.64; the upper confidence interval was 17.37.  
15 Do you see that?

16          A.     Yes.

17          Q.     Now, Dr. Hatten, do you recall in your  
18 prior deposition in this litigation that you  
19 testified you don't have a numerical standard that  
20 you apply to determine whether a confidence  
21 interval is wide or narrow?

22          A.     I don't recall the exact language I use,  
23 but that sounds like an opinion I would express,  
24 and I'd still agree with that.

25          Q.     And is it fair to say that your view is

1       that describing a confidence interval as wide or  
2       narrow is only meaningful when compared to another  
3       confidence interval? So, for example, you can say  
4       this confidence interval is wider than that  
5       confidence interval.

6           A.       That -- that is something you can say.  
7       I don't know if that is the exclusive time using  
8       that terminology would be appropriate.

9           Q.       Have you ever -- in prior litigation do  
10      you recall characterizing a confidence interval of  
11      0.88 to 2.24 as very wide?

12          A.       I don't recall if I used that specific  
13      language or not.

14          Q.       I'm going to show you Hatten Exhibit 49.

15                   (Exhibit 49 was marked for  
16                   identification and is attached to  
17                   the transcript.)

18           MR. ORTIZ: Sorry. Did you want a  
19      copy that's not banged up?

20           MR. RUZICKA: That's all right.

21      BY MR. ORTIZ:

22          Q.       Do you recognize this document,  
23      Dr. Hatten?

24          A.       Yeah. It appears to be a deposition  
25      transcript.

1 Q. Okay. And do you agree that on the  
2 first page it says Video-Recorded Deposition  
3 Benjamin Hatten, M.D., M.P.H., correct?

4 A. Yes.

5 Q. And this is in the Zantac litigation?

6 A. Yes.

7 Q. And your deposition was taken on May 17,  
8 2022, correct?

9 A. That's what it appears to be.

10 Q. And this is a transcript of that  
11 deposition?

12 A. It appears to be.

13 Q. And you were retained in that litigation  
14 as an expert witness by the defendant, correct --

15 A. Correct.

16 Q. -- one of the defendants.

17 And defense counsel was present during  
18 this deposition, correct?

19 A. Yes.

20 Q. Would you please turn to page 146, and  
21 please tell me when you are there.

22 A. Yes, I'm here.

23 Q. All right. Starting at -- I'm going to  
24 read starting at line 19.

25 "Question: Okay. And you list the

1 hazard ratio with ranitidine and bladder cancer as  
2 1.41; is that correct?

3 "Answer: Correct. That's the author's  
4 reported point estimate of the hazard ratio of 1.41  
5 with again a similarly wide confidence interval  
6 that crosses the null. It's .88 to 2.24.

7 "Question: So is it fair to say that  
8 this Yoon study also demonstrates an increased risk  
9 of bladder cancer albeit non-statistically  
10 significantly?

11 "Answer: I would say that it  
12 demonstrates a point estimate that is higher than  
13 1 but with a very wide confidence interval."

14 Did I read that correctly?

15 MR. RUZICKA: I'm going to object just  
16 to the extent that it didn't note the  
17 objection made by counsel at this deposition  
18 on line 3 of page 147.

19 MR. ORTIZ: Sure, that's fine.

20 BY MR. ORTIZ:

21 Q. Did I read that correctly?

22 A. I think you read that correctly,  
23 although I think I'm discussing it in the context  
24 of various findings since it's studies. I don't  
25 think a -- I think we would have to review the



1 actual studies to have a good context for it.

2 Q. And if you look down to the line 15 on  
3 page 147, do you see that? It reads -- I will read  
4 from there.

5 "Question: And the next study that you  
6 looked at is Kantor 2021; is that correct?

7 "Answer: Yes.

8 "Question: Is this a cohort study as  
9 well?

10 "Answer: Correct, that's a cohort  
11 study.

12 "Question: And comparing ranitidine  
13 users to non-users, there is an adjusted odds ratio  
14 of 1.22; is that correct?

15 "Answer: The authors report the point  
16 estimate 1.22 with again a wide confidence interval  
17 that crosses 1 that goes from .74 to 2.01."

18 Did I read that correctly?

19 A. Yes, you did, with the same caveats as  
20 the last answer.

21 Q. Would you agree that a confidence  
22 interval of 0.64 to 17.37 is wider than a  
23 confidence interval of 0.88 to 2.24?

24 A. Yes, that's a wider confidence interval.

25 Q. Okay. Going back to Additional File 2,

1 I want to direct your attention to the high  
2 exposure category for TVOC. Do you see that?

3 A. Yes.

4 Q. And the hazard ratio is 1.20 with a  
5 confidence interval of 0.17 to 8.61, correct?

6 A. Correct.

7 Q. And so the data indicates that the risks  
8 or the association, rather, with bladder cancer  
9 decreased from the medium exposure to the high  
10 exposure, correct?

11 A. The data indicates the point estimate is  
12 lower at the high exposure than the medium  
13 exposure.

14 Q. And that was based on two cases in the  
15 high exposure category, correct?

16 A. Correct.

17 Q. And just to be clear, 1.20 is lower than  
18 3.33, correct?

19 A. Yes, that's correct.

20 Q. And the confidence interval of 0.17 to  
21 8.61 is wider than the confidence interval of 0.88  
22 to 2.24, correct?

23 A. Yes, that's correct. That's a wider  
24 confidence interval.

25 Q. Okay. I want to talk about PCE next,

1 and before we talk about the specifics in the  
2 Criswell report, you are aware that ATSDR used two  
3 models for PCE at Tarawa Terrace, the TechFlow MP  
4 model and the MT3DMS model, correct?

5 A. Yes, that's my understanding.

6 Q. And you only used the data from the  
7 TechFlow MP model, correct?

8 A. I believe I used the lower number as the  
9 more conservative one, and that was the TechFlow MP  
10 model.

11 Q. Can you tell me the difference between  
12 the two models?

13 A. Sitting here, I don't know the details  
14 of the difference between the two.

15 Q. And you put Mr. Criswell in the high  
16 exposure category for PCE, correct?

17 A. Correct.

18 Q. And you were citing ATSDR 2018, the  
19 morbidity study, correct?

20 A. Correct.

21 Q. Let me grab a copy of that.

22 And I'm handing you what's been  
23 previously marked as Hatten Exhibit 15 at your  
24 prior deposition. Do you recognize Hatten Exhibit  
25 15 as ATSDR 2018, the morbidity study?

1 A. Yes.

2 Q. And do you recall testifying at your  
3 last deposition in May about the limitations of  
4 this study?

5 A. I don't recall the details of the  
6 testimony, but I presume we discussed that.

7 Q. Do you recall that this study has major  
8 limitations?

9 MR. RUZICKA: Objection, form.

10 A. The study has limitations. I don't  
11 recall specifically what the discussion that we had  
12 was.

13 Q. Sure. I will direct your attention to  
14 page 11 of Hatten Exhibit 15, please. Let me know  
15 when you are there. I'm sorry, page 12.

16 And it says, "Given the major  
17 limitations of this study, ATSDR is conducting  
18 additional research of the Camp Lejeune cohorts to  
19 help further evaluate the incidence of cancer in  
20 this population."

21 Did I read that correctly?

22 A. Yes, you did.

23 Q. And then going back to page 11, do you  
24 agree that they discuss that the study results  
25 could have been impacted by exposure

1 misclassification bias?

2 A. Yes.

3 Q. And at the top of the page they discuss  
4 that selection bias could have impacted analyses  
5 comparing Camp Lejeune to Camp Pendleton, likely  
6 biasing results away from the null and potentially  
7 overestimating the effects of the exposures.

8 Do you see that?

9 A. Yes, I see that.

10 Q. And that's because this study was based  
11 on participation in a health survey, correct?

12 MR. RUZICKA: Objection, form.

13 A. That was part of a case-finding  
14 mechanism, was a -- was a survey.

15 Q. And are you aware that this study  
16 assumed that all the participants at Camp Lejeune  
17 were exposed to elevated levels of VOCs?

18 A. I don't recall all the assumptions in  
19 the studies.

20 Q. Sure. And are you aware that this study  
21 was never submitted to a peer-reviewed journal?

22 A. My understanding is it was published  
23 directly by the ATSDR per their kind of internal  
24 review process.

25 Q. It was never externally peer reviewed,

1 correct?

2 A. Not that I'm aware of.

3 Q. And would you agree that peer review is  
4 a key part in determining whether a study is  
5 scientifically reliable?

6 MR. RUZICKA: Objection, form.

7 BY MR. ORTIZ:

8 Q. You can answer.

9 A. It's typically a portion or a key part  
10 of that. I will say the -- as scientists and  
11 toxicologists, we will frequently rely upon  
12 government-published reports that are not subject  
13 to external peer review with the assumption that  
14 the government is performing reliable work.

15 Q. And you also cite in the PCE paragraph  
16 in Mr. Criswell's report, you cite Bove 2014,  
17 correct?

18 A. Correct.

19 Q. And using Bove 2014, Mr. Criswell would  
20 be in the high exposure category for PCE, correct?

21 A. Yes.

22 Q. And you state the hazard ratio of 1.24,  
23 correct?

24 A. Correct.

25 Q. And if you turn to page 9 of Additional

1 File 2, please. Just let me know when you are  
2 there.

3 A. Yes, I'm on page 9.

4 Q. And do you see that the HR for the high  
5 exposure category for PCE is 1.24 with a confidence  
6 interval of 0.25 to 6.21 with three cases?

7 A. So are you on page 9 of the paper or  
8 page 9 of the document?

9 Q. Sorry. Page 9 of Additional File 2.

10 MR. RUZICKA: Exhibit 48.

11 MR. ORTIZ: Yes, correct. Thank you.

12 BY THE WITNESS:

13 A. All right. Could you repeat the  
14 question?

15 BY MR. ORTIZ:

16 Q. Yeah, no problem.

17 Do you see the high exposure category  
18 for PCE? Do you see that there?

19 A. Yes.

20 Q. And do you see the HR is 1.24 with a  
21 confidence interval of 0.25 to 6.21 with a total of  
22 three cases?

23 A. Yes, I see that.

24 Q. And you see the medium exposure category  
25 is 1.62 with a confidence interval of 0.23 to 8.10

1 based on three cases?

2 A. Yes, I see that.

3 Q. Do you agree these confidence intervals  
4 are wider than 0.88 to 2.24?

5 A. Yes, those confidence intervals are  
6 wider than that.

7 Q. And you didn't discuss those  
8 confidential intervals in your Criswell report,  
9 correct?

10 A. No. I think I was -- I think it's a  
11 step in all my reports with how I discuss elevated  
12 measures of association.

13 Q. Correct. And then you also discuss in  
14 your Criswell report Aschengrau 1993, correct?

15 A. Correct.

16 Q. And I'm going to hand you a copy of  
17 that, and I'm handing you what was previously  
18 marked as Exhibit 26 at your prior deposition.  
19 Do you recognize Hatten Exhibit 26 as a copy of  
20 Aschengrau 1993?

21 A. Yes.

22 Q. And in your Criswell report you state  
23 that in Aschengrau 1993 the 90th percentile dose of  
24 PCE was 27.1 milligrams with latency and 44.1  
25 milligrams without latency. Is that correct?



1 A. Correct.

2 Q. And just for the record, to convert  
3 milligrams to micrograms you would just multiply by  
4 a thousand, correct?

5 A. Correct.

6 Q. And to convert micrograms to milligrams  
7 you would just divide by a thousand, correct?

8 A. Correct.

9 Q. Aschengrau 1993 only considered a single  
10 bladder cancer case to be exposed to PCE when  
11 considering latency, is that correct? And you can  
12 turn to Table 4 on page 289 of Aschengrau 1993.

13 A. Correct, with latency there is one case.

14 Q. And they were not able to calculate an  
15 any crude odds ratio for bladder cancer when  
16 considering latency as a result, correct?

17 A. Correct.

18 Q. And would you agree that considering  
19 latency is one way that a study might account for  
20 the possibility of a confounding variable or bias?

21 A. Yes. Specifically for a  
22 misclassification bias is typically how it is used,  
23 that this is a preexisting cancer that you are  
24 attributing to the exposure if you don't account  
25 for latency.

1 Q. And you are relying on the data in  
2 Aschengrau 1993, which is also on Table 4, that  
3 does not consider latency, correct?

4 A. Correct. That's the available data we  
5 have.

6 Q. And you put Mr. Criswell in the high  
7 exposure group for PCE when compared to Aschengrau  
8 1993 because Dr. Reynolds calculated that his PCE  
9 dose ranged from 120.6 milligrams to 168.0  
10 milligrams, correct?

11 A. Correct.

12 Q. Where are those numbers in Dr. Reynolds'  
13 report concerning Mr. Criswell?

14 A. I believe those are in -- under PCE  
15 the -- or if you look on my table, for PCE the  
16 TechFlow MP model has 120,572 micrograms, and using  
17 the ATSDR consumption -- assumptions for 168,032,  
18 using the deposition and field manual assumptions.

19 Q. Okay. So you used the ATSDR assumptions  
20 as the lower estimate, and then you used the  
21 deposition/field manual assumptions as the upper  
22 estimate. Is that correct?

23 A. As calculated by Dr. Reynolds or as  
24 transmitted to me as Dr. Reynolds' calculation.

25 Q. Did you use the ATSDR assumptions as the

1 lower boundary simply because that number was lower  
2 than the deposition/field manual assumptions?

3 A. I just used that as the range of the  
4 values that were expressed. Maybe I don't  
5 understand the question you are asking, but...

6 Q. I'm just trying to understand if there  
7 was anything to the nature of those assumptions  
8 that would have led you to use the ATSDR as the  
9 lower boundary other than just the fact that the  
10 numbers were lower?

11 A. No. I just expressed those as two  
12 alternate models for estimating exposure.

13 Q. Okay. And then going back to Aschengrau  
14 1993, you state that the OR, odds ratio, for the  
15 high PCE exposure group was 6.04?

16 A. Correct.

17 Q. And if you look at Table 4 on page 289  
18 of Aschengrau 1993, you see the crude odds ratio  
19 for bladder cancer when considered without latency  
20 is 6.04 with the confidence interval of 1.32 to  
21 21.84. Do you see that?

22 A. Yes, I see that.

23 Q. And you didn't list that confidence  
24 interval in your Criswell report, correct?

25 A. No, I did not.

1 Q. And that was based on four cases,  
2 correct?

3 A. Correct.

4 Q. And there were a total of 13 bladder  
5 cancer cases when considered without latency in  
6 Aschengrau 1993, correct?

7 A. Correct.

8 Q. Okay. You can put that aside.

9 A. Sorry. There are four bladder cancer  
10 cases, yes, correct, in the high --

11 Q. Right, right.

12 A. -- high exposure category.

13 Q. And the PCE exposure category table, the  
14 result that says "any," you go down to without  
15 latency bladder cancer cases, the number there is  
16 13?

17 A. Correct.

18 Q. Turning to TCE next, you put  
19 Mr. Criswell in the medium exposure group for TCE  
20 when compared to ATSDR 2018, correct?

21 A. Correct.

22 Q. And if you turn to page 76 of ATSDR  
23 2018, let me know when you are there, the actual  
24 page numbered 76 in the document.

25 A. Sorry. Page 76 of the document or

1 the --

2 Q. Correct. And just let me know when you  
3 are there.

4 A. All right. I believe I'm there.

5 Q. And you see the results for bladder  
6 cancer? Well, first, let me ask you this: This is  
7 Table 7, setting out the odds ratios for cumulative  
8 TCE exposure in Marines at Camp Lejeune compared  
9 with those at Camp Pendleton, correct?

10 A. Correct.

11 Q. And you see the results for bladder  
12 cancer in about the middle of the table, correct?

13 A. Yes.

14 Q. And for low exposure, that's 1.28 with a  
15 confidence interval of 0.76 to 2.15, correct?

16 A. Correct.

17 Q. And then for medium exposure it's 1.68  
18 with a confidence interval of 1.00, with a  
19 confidence interval of 1.00 to 2.82?

20 A. Correct. Or you read that correctly.

21 Q. And then in the high exposure it's 0.93  
22 with a confidence interval of 0.43 to 2.01?

23 A. Yes, that's -- you read that correctly.

24 Q. And in your Criswell report you cited  
25 the odds ratio for only the medium exposures,

1 correct?

2 A. Correct. I think I consistently in  
3 these reports cited the odds ratio and exposure  
4 range for whatever the individual plaintiff fell  
5 into in each instance.

6 Q. But you omitted the results for the high  
7 exposure category, correct?

8 MR. RUZICKA: Objection, form.

9 A. I don't think Mr. Criswell fell into the  
10 high exposure category, so I didn't include it in  
11 this portion.

12 Q. And the OR, as I just read, decreased  
13 from the medium exposure to the high exposure  
14 category, correct?

15 A. Correct, and as you just read in this  
16 table.

17 Q. All right. And then you also put  
18 Mr. Criswell in the high exposure group of TCE  
19 compared to Bove 2014, correct?

20 A. Yes, that's correct.

21 Q. And if you turn to Additional File 2 for  
22 Bove 2014, if you go to page 7 of that document,  
23 please, and just let me know when you are there.

24 Are you there, sir?

25 A. Yes.

1 Q. And for the high cumulative exposure  
2 group TCE, the HR for high exposure is 0.92 with a  
3 confidence interval of 0.15 to 5.55, correct?

4 A. Correct.

5 Q. And that's based on two bladder cancer  
6 cases, correct?

7 A. Correct.

8 Q. And you didn't -- as you stated, you  
9 didn't include that confidence interval in your  
10 Criswell report, correct?

11 A. Correct. I have not included confidence  
12 intervals in any of my reports in this matter.

13 Q. Turning to vinyl chloride next,  
14 Mr. Criswell was in the medium exposure category  
15 for vinyl chloride compared to Bove 2014, correct?

16 A. Correct.

17 Q. And if you turn to page 5 of additional  
18 exhibit -- Additional File 2, excuse me, that sets  
19 out the cumulative exposure to vinyl chloride, and  
20 the medium OR is 2.59 with a confidence interval of  
21 0.61 to 10.98, correct?

22 A. Correct.

23 Q. And that's based on five bladder cancer  
24 cases, correct?

25 A. Correct.

1           Q.     And turning to the high exposure  
2     category, the HR decreases to 0.91 with a  
3     confidence interval of 0.15 to 5.52, correct?

4           A.     I think you read the high exposure  
5     category correctly.

6           Q.     And that's based on two bladder cancer  
7     cases?

8           A.     Yes, that's correct.

9           Q.     Would you agree that both of those  
10    confidence intervals are wider than 0.88 to 2.24?

11          A.     Yes, both of those confidence intervals  
12    are wider than the other confidence interval you  
13    expressed.

14          Q.     And both of those by including 1.0  
15    traditionally would not be considered statistically  
16    significant, correct?

17                   MR. RUZICKA:  Objection, form.

18    BY MR. ORTIZ:

19          Q.     Can you answer my question?

20          A.     Correct, by a traditional definition of  
21    statistical significance.

22          Q.     And that's been generally true all of  
23    the confidence intervals I've read, those that  
24    included 1.0 in their results, correct?

25                   MR. RUZICKA:  Object to form.



1           A.       Generally that's the traditional  
2       assumption, that the confidence interval crosses 1.

3           Q.       Let's discuss benzene now, and then  
4       maybe we will break after that.

5           A.       Sure.

6           Q.       So benzene, Mr. Criswell was in the  
7       medium exposure group for benzene, correct?

8           A.       Correct.

9           Q.       And if you turn to page 3 of Additional  
10      File 2, you see the cumulative exposure to benzene  
11      results, correct?

12          A.       Yes.

13          Q.       And the OR for medium exposure is 4.04  
14      with a confidence interval of 0.77 to 21.18,  
15      correct?

16          A.       Correct.

17          Q.       And that's based on five bladder cancer  
18      cases?

19          A.       Yes, that's correct.

20          Q.       And for high exposure the HR decreases  
21      to 2.26 with a confidence interval of 0.37 to  
22      13.78, correct?

23          A.       Correct.

24          Q.       And that's based on three bladder cancer  
25      cases?

1 A. Correct.

2 Q. And would you agree that both of those  
3 confidence intervals are wider than 0.88 to 2.24?

4 A. Both of those confidence intervals are  
5 wider than the confidence interval you reference.

6 Q. And both of those traditionally by  
7 including 1.0 would not be considered significantly  
8 statistically significant, correct?

9 MR. RUZICKA: Object to form.

10 A. Correct. I think I've answered the same  
11 thing a number of times.

12 MR. ORTIZ: We can go off the record.

13 THE VIDEOGRAPHER: The time is 11:43.  
14 We are off the record.

15 (Lunch recess taken.)

16 THE VIDEOGRAPHER: The time is  
17 12:44 p.m. We are back on the record.

18 BY MR. ORTIZ:

19 Q. Dr. Hatten, did you talk about the  
20 substance of the -- of your testimony so far during  
21 the break?

22 A. No.

23 Q. And when we left off we were discussing  
24 the Criswell report, Hatten Exhibit 39, and we had  
25 just finished discussing benzene, so I want to move

1 to the inhalational studies on page 4 of your  
2 Criswell report. Do you see that?

3 A. Yes.

4 Q. And you cite -- the first one you cite  
5 is Hadkhale 2017. Is that right?

6 A. Correct.

7 Q. And before we talk about those studies,  
8 you state that it's unclear whether risk estimates  
9 from these studies are directly informative,  
10 correct?

11 A. Correct. Whether the -- I think they  
12 have implication, and I don't know if this was  
13 explicit in the report, is whether the exposure  
14 estimates related to risk are directly informative.

15 I think the overall question of, as  
16 explained in the general causation report, is that  
17 discussing whether these compounds caused bladder  
18 is informative but the risk estimates from  
19 exposures reported in these may or may not be.

20 Q. Sure, and thank you for that.

21 You said earlier that it was your  
22 understanding that Dr. Reynolds estimated ingestion  
23 exposures, correct?

24 A. Correct.

25 Q. And not inhalational or dermal

1 exposures?

2 A. Correct, that was my understanding.

3 Q. And you say here that it's unclear  
4 whether these risk estimates from these studies are  
5 directly informative because Mr. Criswell's  
6 exposures represent a combination of ingestion,  
7 dermal and inhalational routes, correct?

8 A. Correct.

9 Q. So if the risk estimates from these or  
10 the data from these studies are not directly  
11 informative because they don't consider the other  
12 two routes of exposure, then how are Dr. Reynolds'  
13 estimates informative if they only include  
14 ingestion?

15 A. They are representative of the estimates  
16 that were used by other authors in assessing risks,  
17 so the only -- such as Dr. Bove, who used  
18 micrograms per liter month as the exposure estimate  
19 or duration on base as exposure estimates, and  
20 those are directly correlated to the estimates that  
21 Dr. Reynolds developed.

22 In addition, the PCE exposure in  
23 Aschengrau was expressed in cumulative dose, and  
24 that's what Dr. Reynolds estimated in her  
25 cumulative dose estimate, and so that's comparing

1 the exact same thing. It would only be a higher  
2 risk than that, than those expressed if you had  
3 taken into account other routes of exposure beyond  
4 ingestion. So these are -- could be considered  
5 minimum risks, risk estimates.

6 Q. And given that Dr. Reynolds only  
7 estimated ingestion exposures, you don't have data  
8 on what inhalational or dermal exposures would be,  
9 correct?

10 A. I'm not aware that anyone has estimated  
11 with any degree of accuracy individual or exposure  
12 estimates for dermal or inhalational.

13 Q. In the Camp Lejeune Plaintiffs?

14 A. In the Camp Lejeune Plaintiffs, correct.

15 Q. I'm going to hand you what was marked as  
16 Hatten Exhibit 33 at your prior deposition, and do  
17 you recognize Hatten Exhibit 33 as a copy of  
18 Hadkhale 2017?

19 A. I believe this is correct. I may have  
20 referenced a couple of Hadkhale studies in my --  
21 it's somewhere in my report. I believe this is the  
22 correct one, though. I would have to review it to  
23 confirm.

24 Q. Sure. And you recall testifying about  
25 this document, about this study at your deposition

1 in May, correct?

2 A. I don't recall the details of my  
3 testimony specifically about this, but it's an  
4 exhibit marked for my deposition, so I assume we  
5 talked about it.

6 Q. And you would agree that Hadkhale 2017  
7 involves exposures measured in ppm years or part  
8 per million years?

9 And I would direct you to Table 3 on  
10 page 1740 of this exhibit.

11 A. Yes, I see Table 3.

12 Q. Do you see "Category," parentheses,  
13 "Unit Years"?

14 A. Correct, I see that.

15 Q. And then behind or after each agent it  
16 says, parentheses, "ppm" or "parts per million"?

17 A. Yes, I see that.

18 Q. So you agree that the exposures measured  
19 here are in ppm years?

20 A. I believe that is correct. I believe  
21 the individual numbers listed below are in parts  
22 per million years --

23 Q. Okay.

24 A. -- for the ranges listed below.

25 Q. Okay. And you agree that one part per

1 million is equal to a thousand parts per billion,  
2 correct?

3 A. Correct.

4 Q. And so on exposures in ppm years would  
5 be potentially thousands of times higher than  
6 exposures in parts per billion?

7 MR. RUZICKA: Objection, form.

8 A. It would depend on the number, the  
9 specific numbers. I mean, you could have a  
10 thousand parts per billion and that would be one  
11 part per million, so...

12 Q. You agree that four parts per billion --  
13 parts per million would be thousands of times  
14 higher than 40 parts per billion, for example?

15 A. It would be hundreds of times. You said  
16 40.

17 Q. Let's go 40 parts per million would be  
18 thousands of times higher, correct?

19 A. Than 40 parts per billion?

20 Q. Yes.

21 A. Yes, or a thousand times higher.

22 Q. And you agree that Hadkhale 2017 lacked  
23 direct information on smoking in the underlying  
24 cohort, correct?

25 A. I would have to review the details.

1 I don't recall all the facts included.

2 Q. Please turn to page 1745, and the  
3 paragraph about midway, on the left-hand column  
4 about midway down, it says, quote, "The confirmed  
5 association between smoking and bladder cancer  
6 makes it important to estimate the role of smoking  
7 as a potential confounder. We did not have direct  
8 information about smoking of the individuals of the  
9 NOCCA cohort, but the aggregate level information  
10 can be estimated, e.g., on the basis of lung cancer  
11 risk in each of the occupations."

12 Did I read that correctly?

13 A. Yes. You didn't read the next sentence,  
14 which just talks about how they considered that,  
15 the authors considered it. But I agree that they  
16 state that they did not have direct information  
17 from the individual members of the cohort.

18 Q. And if you go back to Table 3 on page  
19 1740, would you agree that Hadkhale 2017 only found  
20 an elevated odds ratio for TC and bladder cancer at  
21 exposures above 129.50 ppm years?

22 A. So this is a situation where the only  
23 point estimate that was greater than 1.1, which was  
24 the consistent definition of an elevated measure of  
25 association that I've used throughout my testimony



1 and my reports and is consistent with ATSDR. The  
2 framework base ATSDR put out, the only one that is  
3 elevated above 1.1 is the greater than the 129.5.

4 For example, the risk estimate for an  
5 exposed less than 32.8 is 1.07, which is elevated,  
6 and it's elevated with a statistically significant  
7 -- at a statistically significant range, but I did  
8 not list that or discuss that because I have been  
9 consistent throughout how I have expressed an  
10 elevated measure of association.

11 Q. Sure, and as I understand, you testified  
12 earlier that you were drawing that 1.10 threshold  
13 from ATSDR's assessment of the evidence in 2017,  
14 correct?

15 MR. RUZICKA: Objection, form.

16 A. That was one of the factors, but that  
17 was the primary -- that was a primary driver of why  
18 I chose 1.1 as a -- as denoting an elevated measure  
19 of association.

20 Q. And ATSDR's assessment of the evidence  
21 stated that risk estimates above 1.10 were  
22 considered elevated but risk estimates below 1.10  
23 were considered near the null. Isn't that correct?

24 A. I don't recall the exact language, but  
25 that was the essence of what they stated.

1 Q. Okay. And so just to be clear, that  
2 1.07 in the two lower categories for TCE under  
3 ATSDR's threshold would be considered near the null  
4 and not elevated, correct?

5 A. Correct.

6 Q. Thank you. And for PCE, Hadkhale 2017  
7 only found an elevated odds ratio for PCE and  
8 bladder cancer at exposures above 87 -- sorry --  
9 exposures in the 13.6 to 87.55 ppm years category,  
10 correct?

11 A. Correct.

12 Q. And then in the higher exposure  
13 category, above 87.55, the HR decreased to 0.94  
14 with a confidence interval of 0.73 to 1.22,  
15 correct?

16 A. Correct.

17 Q. And turning -- going down to benzene,  
18 lower on that page, Hadkhale 2017 only found an  
19 elevated odds ratio for benzene and bladder cancer  
20 at exposures above 15.04 ppm years, correct?

21 A. Correct.

22 Q. And again, that's -- when I say  
23 "elevated," I'm referring to that 1.10 threshold  
24 that you testified about, correct?

25 A. Yeah. I wouldn't call it a threshold,

1 but as a marker of an elevated measure of  
2 association.

3 Q. All right. You can put that aside.

4 (Exhibit 50 was marked for  
5 identification and is attached to  
6 the transcript.)

7 BY MR. ORTIZ:

8 Q. I'm going to hand you what's been marked  
9 as Hatten Exhibit 50, and do you recognize Hatten  
10 Exhibit 50 as Lynge 2006?

11 A. Yes.

12 Q. And Lynge 2006 analyzed bladder cancer  
13 incidence among Nordic dry cleaners, correct?

14 A. Yes.

15 Q. And it was based on a total of 168 total  
16 PCE measurements made in dry cleaning shops in the  
17 Nordic countries between 1964 and 1979, correct?

18 A. I would have to review the methods of  
19 the paper to confirm, but I don't have a reason to  
20 doubt what you are representing.

21 Q. Okay. And if you turn to page 214, in  
22 the right-hand column all the way on the right on  
23 the first full paragraph, the second full sentence  
24 says, "Only 168 tetrachloroethylene measurements  
25 were made in dry cleaning shops in the Nordic

1 countries between 1964 and 1969."

2 Did I read that correctly?

3 A. Okay. Sorry. You are talking about the  
4 third sentence in the first full paragraph, is that  
5 correct?

6 Q. The second sentence in the first full  
7 paragraph in the right-hand column.

8 A. The second sentence says, "In 1980 these  
9 limits were..."

10 Q. No, no. Are you on page 214?

11 A. Yes.

12 Q. The furthest right, the column all the  
13 way on the right?

14 A. Correct.

15 Q. The first full paragraph, it says, "Only  
16 168 tetrachloroethylene measurements..." Do you  
17 see that?

18 A. Yes. That's the third full sentence,  
19 correct?

20 Q. Oh, you are right. So it is.

21 Did I read that correctly?

22 A. I don't recall what you read, but I  
23 would need you to repeat it.

24 Q. "Only 168 tetrachloroethylene  
25 measurements were made in dry cleaning shops in the

1 Nordic countries between 1964 and 1979." Did I  
2 read that correctly?

3 A. Yes.

4 Q. And do you agree that such limited  
5 numbers of air measurements did not allow  
6 subdivision of study subjects by exposure level?

7 A. I would have to review the methods to  
8 evaluate whether that statement is correct or not.

9 Q. Okay. So if that statement appears in  
10 the study, you wouldn't disagree with it?

11 A. I wouldn't necessarily -- I wouldn't  
12 disagree with the words you stated. I would have  
13 to review the entire study to determine whether the  
14 statement is -- accurately represents the others'  
15 findings and their methods.

16 Q. And you relied on this study, correct?

17 A. In part, correct.

18 Q. And did you cite this study in your  
19 general causation report?

20 A. I believe so.

21 Q. Do you recall?

22 A. I believe I did, but I would have to  
23 review the report to confirm.

24 Q. If you turn to Table 6 on page 217,  
25 please. You would agree that Table 6 sets out risk

1 ratios -- sorry. Let me know when you are there.

2 A. Yeah, I'm at Table 6.

3 Q. Table 6 sets out risk ratios for various  
4 cancers and dry cleaners in the Nordic countries by  
5 length of employment. Do you see that?

6 A. Yes.

7 Q. And for bladder cancer, the results are  
8 near the bottom, correct?

9 A. The second-from-the-last set of results.

10 Q. Correct. And would you agree that Lynge  
11 2006 observed an increased incidence risk of  
12 bladder cancer among workers with two to four years  
13 employment but not among workers with five to nine  
14 years employment?

15 A. Correct.

16 Q. And Lynge 2006 admitted that the overall  
17 evidence for an association between PCE and bladder  
18 cancer was equivocal, correct?

19 A. I don't recall the specific language  
20 they use. I would have to review the manuscript.

21 Q. Okay. Turn to page 218, please.

22 In the last sentence of the document in  
23 the conclusion section it says, "The evidence for  
24 an association between exposure to  
25 tetrachloroethylene and risk of bladder cancer is

1       equivocal." Do you see that?

2           A.       They are saying their assessment of the  
3       overall evidence 2006 is equivocal. If you look  
4       two sentences above, it says, "We found an elevated  
5       risk of bladder cancer among Nordic dry cleaners."  
6       That's the conclusion of their findings in this  
7       paper.

8           Q.       Right, and then the next sentence, they  
9       say, "The international data together point to an  
10      excess risk of bladder cancer in dry cleaners of  
11      about 45 percent, but there is no pattern with  
12      exposure indices." Correct?

13          A.       Correct, you read that correctly.  
14                    (Exhibit 51 was marked for  
15                    identification and is attached to  
16                    the transcript.)

17      BY MR. ORTIZ:

18          Q.       And I'm going to hand you what's been  
19      marked as Hatten Exhibit 51, and do you recognize  
20      this document?

21          A.       I recognize the document. I'm just  
22      going to confirm that this is the one I meant to  
23      cite in my paper.

24          Q.       Sure. I think I can probably help that.  
25                    You cited it on the Criswell report in

1 the sentence referring, I think, to the study; you  
2 cited a range of 1.1 to 1.8 micrograms per meter  
3 cubed, correct, and there is an HR of 1.16?

4 A. Correct.

5 Q. If you turn to page 7 of Hatten Exhibit  
6 51, please. Let me know when you are at page 7.

7 A. Yes, I'm on page 7.

8 Q. And do you see that the first agent in  
9 this table, it's C6H6, which is benzene, correct?

10 A. Yes, that's correct, that's benzene.

11 Q. And you see the categories are under 1.1  
12 micrograms per meter cubed, 1.1 to 1.8 micrograms  
13 per meter cubed and above 1.8 micrograms per meter  
14 cubed. Do you see that?

15 A. Yes.

16 Q. And you see the HR value for women of  
17 all ages in the medium category is 1.16?

18 A. Yes, I see that.

19 Q. So do you agree this is the study that  
20 you intended to cite in your Phase III reports?

21 A. I believe it is. I just need to review  
22 this for a moment.

23 MR. ORTIZ: We can go off the record  
24 for a second.

25 THE VIDEOGRAPHER: The time is



1 1:03 p.m. We are off the record.

2 (A short interruption.)

3 THE VIDEOGRAPHER: The time is

4 1:05 p.m. We are back on the record.

5 BY MR. ORTIZ:

6 Q. All right, Dr. Hatten. We took a few  
7 minutes for you to review this document. Have you  
8 confirmed this is the document you intended to cite  
9 in your Phase III reports?

10 A. I believe this is the correct document.

11 Q. Okay, thank you. And we were discussing  
12 the HR for women of all ages in the medium category  
13 for benzene exposure, and the HR is 1.16 with a  
14 confidence interval of 0.77 to 1.73, correct?

15 A. Correct.

16 Q. And do you agree that that confidence  
17 interval is not statistically significant by  
18 traditional conventions? Correct?

19 MR. RUZICKA: Objection, form.

20 A. Correct. By traditional conventions  
21 that wouldn't be considered statistically  
22 significant.

23 Q. And do you agree that you omitted that  
24 from your Phase III reports?

25 MR. RUZICKA: Objection, form.

1           A.     Could you explain what you are referring  
2     to when you say "omitted"?

3           Q.     You did not list the confidence  
4     interval, correct?

5           A.     Correct, I didn't; and as I said before,  
6     I haven't listed the confidence interval anywhere  
7     in any of my reports that I'm aware of.

8           Q.     Correct. And the findings for men under  
9     75 years, do you see that all the way to the left  
10    on the table?

11          A.     Yes, I do.

12          Q.     And the OR in the middle tertile was  
13     1.12 with a confidence interval of 0.86 to 1.47,  
14     correct?

15          A.     Correct.

16          Q.     And the OR in the highest tertile  
17     decreased to 0.95 with a confidence interval of  
18     0.71 to 1.25, correct?

19          A.     Yes, you read that correctly.

20          Q.     Do you agree that information on  
21     smoking, an important confounder, was lacking in  
22     this study?

23          A.     I don't recall if they included smoking  
24     data or not. I would have to review the methods.

25          Q.     Okay. Please turn to page 8.

1                   Do you see the paragraph in the middle  
2 of the page that begins "Secondly"?

3           A.       Yes, I see this.

4           Q.       It says, "Secondly, information on  
5 smoking, an important confounder, was lacking in  
6 this investigation." Did I read that correctly?

7           A.       Correct, or you read that correctly.

8           Q.       And do you agree, the last sentence  
9 says, "However, this indirect method cannot rule  
10 out a tobacco confounder residual effect in the  
11 results." Did I read that correctly?

12          A.       Yes, you read that; you read that  
13 sentence correctly.

14          Q.       And that's what the authors stated about  
15 this study?

16          A.       They are saying that they used an  
17 indirect method with subgroups that had different  
18 proportions of smoking as an attempt to perform a  
19 crude adjustment that there may still be residual  
20 confounding. That's what that last sentence is  
21 referring to.

22          Q.       Correct. And the next sentence in the  
23 next paragraph says, "Thirdly, no information was  
24 available about the daily time spent in each risk  
25 area with different levels of exposure."

1 Did I read that correctly?

2 A. Yes, you read that correctly.

3 Q. You can put that aside.

4 If we go back to your materials  
5 considered list, which I believe was Hatten Exhibit  
6 44. Do you have that handy?

7 A. Yes.

8 Q. And turn to page 3. It gives the  
9 specific -- sorry -- page 2, excuse me, it gives  
10 the specific documents you reviewed for  
11 Mr. Criswell?

12 A. Correct.

13 Q. And that lists all the documents that  
14 you viewed -- you reviewed for Mr. Criswell's case?

15 A. I believe so. All the documents were  
16 provided to me by the attorney.

17 Q. Sure, that's fine. I'm just confirming  
18 those are the documents you reviewed in his case,  
19 correct?

20 A. Correct, correct, in addition to the  
21 exposure profile and chart or chart that  
22 Dr. Reynolds provided to me.

23 Q. Correct, okay. Going back to your  
24 report for Mr. Criswell, I want to scroll to or go  
25 to page 4, please. You see the section that says

1 "Levels recognized to be hazardous to human  
2 health"?

3 A. Yes.

4 Q. And you opine that Mr. Criswell  
5 experienced exposures at levels recognized to be  
6 hazardous to humans for the variables time on base,  
7 TCE, PCE, vinyl chloride and benzene, correct?

8 A. Correct.

9 Q. And then you opine in the next section  
10 under "Substantial Exposures" that the exposure  
11 estimates generated by Dr. Reynolds represents  
12 substantial exposures to TCE, PCE, vinyl chloride  
13 and benzene, correct?

14 A. Yes, with respect to bladder cancers,  
15 yeah.

16 Q. Correct, yeah. And those conclusions  
17 are based on the comparisons to the data from the  
18 studies which we have discussed today?

19 A. Yes, that's correct.

20 Q. All right. And then you discuss the two  
21 EPA documents that we mentioned earlier, and you  
22 state, "There is no safe level of exposure  
23 identified for either," and you are referring to  
24 TCE and PCE and the EPA ban of those chemicals,  
25 correct?

1           A.       Correct.

2           Q.       Do you recall testifying at your  
3 deposition in May that it is not your opinion that  
4 any amount of PCE can cause bladder cancer?

5           A.       I don't recall the specific language  
6 that I used then.

7           Q.       Okay. Let me get that for you.

8                       (Exhibit 52 was marked for  
9 identification and is attached to  
10 the transcript.)

11 BY MR. ORTIZ:

12           Q.       And Dr. Hatten, I'm handing you what's  
13 been marked as Hatten Exhibit 52, which is a copy  
14 of your transcript from your prior deposition in  
15 this litigation. Could you turn, please, to page  
16 69.

17           A.       Yes.

18           Q.       And I want to direct your attention to  
19 line 13 or line 12.

20                       "Question: And to be clear, I'm not  
21 asking about specific individuals. Is it your  
22 opinion that any amount of PCE is capable of  
23 causing kidney cancer or bladder cancer? Is that  
24 your opinion?

25                       "Answer: I don't think that's an

1 opinion that's expressed in this report. I don't  
2 hold that opinion."

3 Did I read that correctly?

4 A. Yes, that -- you read that correctly.

5 Q. So having reviewed that, do you agree  
6 that you testified in May in your deposition in  
7 this litigation that it is not your opinion that  
8 any amount of PCE can cause bladder cancer?

9 MR. RUZICKA: Object to form.

10 A. Correct. I don't think that's different  
11 than the opinion I'm expressing today.

12 Q. And that was going to be my question.  
13 Are you now -- is it now your opinion that any  
14 amount of PCE can cause bladder cancer?

15 A. No, that's not my opinion.

16 Q. And the same question as to TCE. Is it  
17 your opinion that any amount of TCE can cause  
18 bladder cancer?

19 A. No, that's not my opinion. I think what  
20 I'm saying is that there is not an established safe  
21 level of exposure, which is different than saying  
22 that any exposure can be causative.

23 Q. And I'm just going to tick off the other  
24 two. Is it your opinion that any amount of benzene  
25 can cause bladder cancer?

1           A.     No. Again, the same thing, that it's  
2 not my opinion that there is -- that any amount can  
3 cause it. It's just that there is not an estab- --  
4 rather, it's that there is not an established safe  
5 level of benzene with respect to bladder cancer.

6           Q.     And same response, I assume, as to vinyl  
7 chloride?

8           A.     Yes, the same response with just  
9 considering vinyl chloride.

10          Q.     Okay. Do you have any other opinions in  
11 Mr. Criswell's case that we haven't discussed?

12          A.     Only we had discussed that the Yu study  
13 was published after this report was authored, and  
14 that would have informed the inhalational study  
15 section of the report.

16          Q.     And I think you said earlier that Yu  
17 does not have data specific to bladder cancer. Is  
18 that correct?

19          A.     Yu has data specific to bladder cancer.  
20 Just to clarify, it does have bladder  
21 cancer-specific data.

22          Q.     Can you turn to your Raymond report,  
23 please. And my hope is that we can get through  
24 these ones a little bit quicker.

25          A.     Okay.



1 Q. Dr. Hatten, Mr. Raymond was at Camp  
2 Lejeune between November of 1963 and November of  
3 1965, correct?

4 A. Yes, that's what -- that's my  
5 understanding.

6 Q. And he was at Hadnot Point during that  
7 time?

8 A. Or I have listed November of 1963 to  
9 December 1965. I don't know if I was misinformed  
10 or if that is an incorrect.

11 Q. Correct, and if you go to -- just to  
12 clear it up, if you go to the exposure dates in the  
13 appendix...

14 A. Yes.

15 Q. Do you see at the bottom of that, as we  
16 alluded to earlier, that 12/1/1965 is listed?

17 A. Correct.

18 Q. So I assume that December 1st of 1965  
19 was the only day in December 1965 that he was  
20 there?

21 A. That's my understanding, at least based  
22 on the information I was -- that was available to  
23 me.

24 Q. Okay. And you agree that Mr. Raymond  
25 was at Hadnot Point during that time, correct?

1           A.     Yes, that's my understanding, that it  
2     was -- that he was at Hadnot Point.

3           Q.     And you agree that there is no actual  
4     sampling data for Hadnot Point in the 1960s,  
5     correct?

6           A.     Correct. I'm not aware of any sampling  
7     data from Hadnot Point in the 1960s.

8           Q.     And if you look at Appendix A, you did  
9     not include the summed variable totals from  
10    Dr. Reynolds' report for Mr. Raymond; is that  
11    right?

12          A.     With respect to the cumulative dose, is  
13    that correct?

14          Q.     Correct.

15          A.     Yes, that's correct.

16          Q.     Why? Why is that?

17          A.     The only place I was using those  
18    cumulative dose to assess an exposure was with  
19    respect to PCE, and there was no estimated PCE  
20    exposure during the period Mr. Reynolds was on  
21    base, so it was not a relevant portion of my  
22    analysis.

23          Q.     Why did you only use it for PCE and not  
24    the other chemicals?

25          A.     Because the Aschengrau study expresses

1 exposures in total amounts, whereas the other ones  
2 express it in micrograms per liter month, so a  
3 concentration for time. The Bove studies do when  
4 they look at individual compounds, and that is  
5 available without doing a cumulative exposure  
6 estimation using estimates of water ingestion.

7 Q. Did you state that anywhere in your  
8 report?

9 A. I don't know. I don't -- I'm not sure  
10 if I did or not. I don't think I stated that  
11 explicitly.

12 Q. Are there any other details about your  
13 methodology that are not explicitly stated in your  
14 report that come to mind?

15 MR. RUZICKA: Objection, form.

16 A. No, although that's not really a  
17 methodology question. It's just a -- not including  
18 a irrelevant portion of an analysis. So it's not  
19 as if the methodology is different for each  
20 Plaintiff I analyze. It's just what was included  
21 as relevant in the chart in the appendix.

22 Q. So just to be clear, you didn't  
23 necessarily include all the same data in the  
24 appendix for each Plaintiff, correct?

25 A. Correct or -- that is correct. Each

1 Plaintiff's report is individualized to the  
2 Plaintiff.

3 Q. You included what you thought was  
4 relevant?

5 A. Correct.

6 Q. Did you make any changes to  
7 Dr. Reynolds' calculations for Mr. Raymond?

8 A. Not that I'm aware of, although I did --  
9 this is an example of a case where I think I  
10 performed the sensitivity analysis, and I list  
11 that.

12 Q. That was going to be my next question.  
13 So that listing there indicates that you performed  
14 a sensitivity analysis in this case?

15 A. Correct.

16 Q. But are there any actual calculations  
17 here where I can review what that sensitivity  
18 analysis consisted of?

19 A. I mean, I think I told you before. It's  
20 just a proportion of the months. So, for example,  
21 in -- the first month is November. I believe it is  
22 nine-thirtieths times 24 is -- is how I would have  
23 done that. I would have to double-check with a  
24 calculator.

25 Q. So then -- so just to make sure, I'm not

1 going to walk through it all, but just to make sure  
2 I understand, the data on the right-hand side of  
3 the sensitivity analysis is the data after you  
4 performed the sensitivity analysis; is that  
5 correct?

6 A. Correct. It's the estimate base using a  
7 proportional monthly exposure.

8 Q. I see. So the 24 micrograms per liter  
9 per month under TCE became 7 micrograms per liter  
10 per month accounting for the nine days. Is that  
11 correct?

12 A. Correct.

13 Q. And that was just a simple calculation  
14 that you performed?

15 A. Yes, I believe so.

16 Q. Could you turn to page 2 of your Raymond  
17 report, please, and starting with time on base, you  
18 would agree that ATSDR modeled lower contaminant  
19 levels at Camp Lejeune in the 1960s than later on,  
20 correct?

21 A. As a general statement, that is correct.  
22 I don't know that it's true for every month that  
23 was modeled.

24 Q. And you relied for time on base on Bove  
25 2024, which looked at a Marine personnel cohort

1 between 1975 and 1985, correct?

2 A. It was both Marine and civilian  
3 personnel in that study.

4 Q. Right, but in both cohorts, that's both  
5 a time period after the 1960s, correct?

6 A. Correct.

7 Q. And that's why you say that even though  
8 Mr. Raymond was at Camp Lejeune for more than seven  
9 quarters, a lower exposure category for time on  
10 base is a more appropriate surrogate, correct?

11 A. Did I use that exact language somewhere?

12 Q. I will direct you to the bottom, end of  
13 the paragraph.

14 A. Okay. Yes, that -- I think you read  
15 that correctly.

16 Q. And so just to be clear, your opinion is  
17 that Mr. Raymond should be considered to be in the  
18 one to six quarters category for time on base?

19 A. I'm saying his exposure is based on  
20 estimated exposures. During that time period, his  
21 exposure is more similar to that, that range of  
22 duration. If you look at the modeled exposures for  
23 each contaminant during that time period and  
24 compare those to the modeled exposures during the  
25 period that was studied in the 2024a study.

1           Q.     And exposures of one to six quarters for  
2     the Marine cohort did not reveal an elevated  
3     measure of association with bladder cancer  
4     diagnosis, correct?

5           A.     Correct.

6           Q.     All right. And do you have the Bove  
7     2024 study handy?

8           A.     Yes.

9           Q.     Could you turn to page 10, please.

10          A.     Yes, I'm on page 10.

11          Q.     And looking at Table 5, which we  
12     referred to earlier, for low duration at Camp  
13     Lejeune, the OR for bladder cancer is 1.02 with a  
14     confidence interval of 0.87 to 1.20, correct?

15          A.     Correct.

16          Q.     All right. Then going back to your  
17     Raymond report, I want to go to the TVOC category.  
18     Are you there?

19          A.     Yes.

20          Q.     And Mr. Raymond was in the low exposure  
21     category to TVOC, correct?

22          A.     Based on the -- he was in the low  
23     category based on the information that was  
24     available to me, which did not include DCE; and I  
25     don't know what proportion of total volatile

1 organic compounds DCE was when Dr. Bove estimated  
2 that.

3 Q. Sure. Could you go to Additional File  
4 2, please.

5 A. For the 2014a study, correct?

6 Q. Correct.

7 I'm sorry. Did I forget to mention the  
8 TVOCs? The low TVOC exposure category compared to  
9 Bove 2014a, correct?

10 A. That is the -- that is where the  
11 estimate for TVOC came from.

12 Q. Right, thank you. I think I forgot to  
13 mention that.

14 Going to Additional File 2 for bladder  
15 cancer, the low exposure HR is 0.63 with a  
16 confidence interval of 0.06 to 6.93 based on one  
17 bladder cancer case, correct?

18 A. Correct.

19 Q. And 0.06 to 6.93 is wider than 0.88 to  
20 2.24, correct?

21 A. Correct, that is a wider confidence  
22 interval.

23 Q. And going back to your Raymond report,  
24 as you said a minute ago, there was no PCE exposure  
25 while Mr. Raymond was at Hadnot Point, correct?



1 A. Correct.

2 Q. And then moving on to TCE, Mr. Raymond  
3 was in the low exposure group compared to Bove  
4 2014, correct?

5 A. Correct.

6 Q. And if you turn to page 7 of Additional  
7 File 2, please. Do you agree that there was no OR  
8 calculated for the low exposure group for bladder  
9 cancer because there were zero cases?

10 A. Correct.

11 Q. And in your discussion of Mr. Raymond's  
12 TCE exposures, you also cite ATSDR 2018, correct?

13 A. Correct.

14 Q. And you discuss or you cite the low and  
15 medium TCE exposure data in ATSDR 2018, correct?

16 A. I cite the -- I discuss the medium.

17 Q. The medium, and we discussed that data  
18 earlier in relation to Mr. Criswell, correct?

19 A. I don't recall. We went through a bunch  
20 of numbers, so I don't recall specifically the  
21 numbers we had discussed at that point.

22 Q. Moving on to vinyl chloride, you agree  
23 that there was no vinyl chloride exposure at Hadnot  
24 Point while Mr. Raymond was there?

25 A. Correct.

1 Q. And then moving on to benzene, you put  
2 Mr. Raymond in the low exposure group, correct?

3 A. Yes, that is correct.

4 Q. And if you turn to Additional File 2,  
5 please, to page 3, the low exposure group for  
6 benzene and bladder cancer could not have an OR  
7 calculated because there were zero bladder cancer  
8 cases, correct?

9 A. Yes, that's correct.

10 Q. So that's no PCE while Mr. Raymond was  
11 there, no vinyl chloride while Mr. Raymond was  
12 there, no OR calculated for benzene and no OR  
13 calculated for TCE in Bove 2014, correct?

14 A. That's correct.

15 Q. And you opine that Mr. Raymond  
16 experienced exposures at levels recognized to be  
17 hazardous to humans for TCE and for time on base,  
18 correct?

19 A. Correct.

20 Q. And for that opinion, how do you  
21 reconcile your statement that he experienced  
22 exposures of levels recognized to be hazardous to  
23 humans for time on base with your statement earlier  
24 in the report that the one to six quarters category  
25 was a most -- more appropriate surrogate?

1           A.       I was saying that his exposure fell --  
2       if you parse it into 1 to 6 versus 7 to 10 versus  
3       how it was divided by in the military subgroup, he  
4       fell into the 1 to 6 quarters in that subgroup.  If  
5       you look at civilian exposures, which in general  
6       are thought to be less than intense, he falls into  
7       the 1 to 21 quarters' duration.

8           Q.       And so because he falls into the 1 to 21  
9       quarters' duration for civilian, the civilian  
10      cohort, your opinion is that he has experienced an  
11      exposure at a level recognized to be hazardous to  
12      humans?

13          A.       That's one factor.

14          Q.       So is it your opinion that being at Camp  
15      Lejeune for as little as three months is sufficient  
16      to experience an exposure at levels recognized to  
17      be hazardous to humans?

18                  MR. RUZICKA:  Objection, form.

19          A.       I think we have direct data from a study  
20      of people who were at Camp Lejeune for at least one  
21      quarter that had an elevated measure of association  
22      with bladder cancer.

23          Q.       Is it your opinion that Mr. Raymond was  
24      not exposed to a sufficient level of benzene to  
25      increase his risk of bladder cancer?

1 MR. RUZICKA: Objection, form.

2 A. I think a fair way or the way I would  
3 express my opinion is that he is not exposed at a  
4 level that has demonstrated an elevated measure of  
5 association with bladder cancer. That does not  
6 mean that that level is not at all related to  
7 development of bladder cancer. It just has not  
8 been demonstrated to date by evaluation.

9 Q. So your testimony is that even though  
10 Mr. Raymond's level of benzene exposure is lower  
11 than or is not at a level sufficient to correlate  
12 to an associated risk of bladder cancer, that it  
13 could still be contributing; is that correct?

14 A. I'm saying I don't think we know one way  
15 or another. It's just there is not enough data to  
16 tell us currently. Based on the information we  
17 have from direct measurements at Camp -- or direct  
18 estimations from the cohort at Camp Lejeune, we  
19 have not seen an elevated measure of association.

20 If you look at, for example, the Yu  
21 study that is primarily inhalational but it uses  
22 very small exposures, like an increase of .05 parts  
23 per billion had a statistically significant  
24 increased risk or an elevated measure of  
25 association that was also statistically --

1 statistically significant by traditional metrics;  
2 and so that would potentially prompt additional  
3 investigation.

4 Based on current information, though, I  
5 do not -- he does not have an exposure that has  
6 been recognized as a level hazardous to human  
7 health with respect to bladder cancer following  
8 benzene exposure.

9 Q. And the Yu study was not available when  
10 you wrote this Phase III report, correct?

11 A. Correct.

12 Q. So you could not have been relying on it  
13 in the Phase III report, correct?

14 A. Correct. When I wrote this, I did not  
15 directly rely on it.

16 Q. And are you aware that Dr. Steven Bird  
17 wrote a Phase III report for Mr. Raymond?

18 A. I don't know what, other than the expert  
19 reports that -- the government's expert reports, I  
20 don't think I've read additional expert reports in  
21 this litigation.

22 Q. So I take it you haven't reviewed  
23 Dr. Bird's Phase III report for Mr. Raymond?

24 A. I have not.

25 Q. And you are aware that Dr. Bird is an

1 expert retained by Plaintiffs in this litigation?

2 A. I am aware that he has been retained by  
3 Plaintiffs.

4 Q. And so if he opined that Mr. Raymond was  
5 substantially exposed to benzene at Camp Lejeune,  
6 would you disagree with him?

7 MR. RUZICKA: Objection, form.

8 A. I don't have a way to agree or disagree  
9 with him without evaluating what he was basing his  
10 opinion upon.

11 Q. But at least in your report, based off  
12 the data for benzene that you evaluate in your  
13 report, Mr. Raymond was not exposed to a sufficient  
14 level of benzene that was correlated to associa- --  
15 or an elevated measure of association with bladder  
16 cancer, correct?

17 MR. RUZICKA: Object to form.

18 A. Correct, based on the information we  
19 have available with respect to bladder cancer.

20 Q. Can you turn to the materials considered  
21 list, please.

22 A. I have to find it.

23 Q. That's fine.

24 A. Yes.

25 Q. With regard to Plaintiff Raymond, you

1 agree that you reviewed the deposition transcript  
2 and then the five documents that are identified  
3 there?

4 A. Yes, correct.

5 Q. You didn't review anything else that was  
6 specific to his case other than the, I understand,  
7 Dr. Reynolds' exposure calculations?

8 A. That's correct.

9 Q. Do you have any other opinions about  
10 Mr. Raymond's case that we haven't discussed?

11 A. Not that is not listed in my report.

12 MR. ORTIZ: Okay. Can we take a quick  
13 break?

14 MR. RUZICKA: Sure.

15 THE VIDEOGRAPHER: The time is 1:36.  
16 We are off the record.

17 (Recess taken.)

18 THE VIDEOGRAPHER: The time is  
19 1:42 p.m. We are back on the record.

20 BY MR. ORTIZ:

21 Q. All right. Dr. Hatten, I want to turn  
22 to your Cagiano report, please.

23 A. Can I just clarify something on this?

24 Q. Yes, go ahead.

25 A. I do state on the last sentence of the

1 last full paragraph on page 4 and the last two  
2 sentences that while TCE has reached a level that  
3 is recognized to be hazardous to human health,  
4 there is a -- what I would consider a substantial  
5 exposure to benzene that when you consider in  
6 conjunction with TCE may be contributory to bladder  
7 cancer. That's recognizing that that benzene, as  
8 we discussed before, that benzene, estimated  
9 benzene concentration is below the level that has  
10 been recognized as hazardous to human health.

11 Q. Okay. Thank you for clarifying that.

12 Turning now to Cagiano. Just let me  
13 know when you have that report in front of you.

14 A. Yes, I have that.

15 Q. And Mr. Cagiano was at Hadnot Point for  
16 several periods of time, correct?

17 A. Yes.

18 Q. And I will just list them and then ask  
19 you if that's right. July 1976 to April 1977,  
20 November 1977 to March 1979, and November 1979 to  
21 May 1980, and then May 1987 to May 1990. Is that  
22 correct?

23 A. Sorry. The mid '70 -- the late '70s,  
24 sorry, you had, what was the interval?

25 Q. November 1979 to May 1980.



1           A.       Correct, and what was the interval  
2 before that?

3           Q.       November 1977 to March 1979.

4           A.       Correct.

5           Q.       And then the Appendix A of your Cagiano  
6 report ends December 31st of 1987, correct?

7           A.       Correct.

8           Q.       And that's the end of the statutory time  
9 period under the Camp Lejeune Justice Act, correct?

10          A.       I don't know what the final date is for  
11 that.

12          Q.       And are you aware that the contaminated  
13 wells were shut down in February of 1985?

14          A.       I don't recall the exact date, but my  
15 understanding is it was roughly then.

16          Q.       And did you include Mr. Cagiano's time  
17 from May to December of 1987 in your calculations?

18          A.       I believe I included those listed as  
19 zeros for TCE, PCE and vinyl chloride. There was a  
20 persistent benzene estimated during that period.

21          Q.       Where is that benzene estimate during  
22 that period of time coming from?

23          A.       It came from Dr. Reynolds' estimates.

24          Q.       And do you know where Dr. Reynolds got  
25 it?

1 A. I do not.

2 Q. And did this data come from  
3 Dr. Reynolds' report?

4 A. It came from a table that was provided  
5 to me, so...

6 Q. Was the table within Dr. Reynolds'  
7 report?

8 A. I don't know. As I said before, I  
9 haven't reviewed her full report. I was just  
10 provided a table from her.

11 Q. Was the table attached to her report?

12 A. I don't know.

13 Q. Okay. Why don't you pull out Reynolds,  
14 Dr. Reynolds' report. Can you get that in front of  
15 you, please.

16 And Appendix 1 is for Mr. Cagiano,  
17 correct?

18 A. Yes.

19 Q. And did it come from -- did the table  
20 you were referencing come from somewhere in this  
21 appendix?

22 A. I suspect it was the first one listed.

23 Q. Did you make any changes to her  
24 calculations?

25 A. Not -- no, not that I'm aware of, at

1       least on the first portion of that.

2           Q.       Are you aware of any changes elsewhere?

3           A.       I believe the second set is another  
4       sensitivity analysis. The label just was not  
5       included. I don't know if that came directly from  
6       hers or -- yeah, I think I did that sensitivity  
7       analysis.

8           Q.       Okay. And you agree the words  
9       "sensitivity analysis" don't appear on your  
10      appendix in your Phase III report?

11          A.       Correct. It may have dropped off  
12      because of formatting when I made it a PDF.

13          Q.       Okay. And are you aware that  
14      Mr. Cagiano lived off base in August to December of  
15      1976?

16          A.       I don't recall if I was ever made aware  
17      of that or not.

18          Q.       Did you account for his residency off  
19      base during that time period?

20          A.       I don't know whether that is accounted  
21      for in the table that Dr. Reynolds produced and  
22      when I -- I explained how I did the sensitivity  
23      analyses, which is a proportional calculation, to  
24      set up that table.

25          Q.       And when Mr. Cagiano was at Hadnot Point

1 in the 1970s, you would agree there is no sampling  
2 data for Hadnot Point during that time?

3 A. I don't recall the exact dates, but it  
4 was roughly 1980 when the first samples were  
5 obtained, is my understanding.

6 Q. All right. If you'll turn to page 2 of  
7 the Cagiano report, please. You state that  
8 Mr. Cagiano spent 11.3 quarters on base, correct?

9 A. Correct.

10 Q. And in calculating the 11.3 quarters,  
11 did you include the period of May to December 1987?

12 A. No. I state that's between 1975 and  
13 1985.

14 Q. And the -- you are comparing that to  
15 data from Bove 2024, correct?

16 A. Correct.

17 Q. And the OR for the high time on base  
18 group was 1.2 with a confidence interval of 0.94 to  
19 1.52, correct?

20 A. I have an adjusted hazard ratio listed.  
21 I'm just confirming that that was the correct --

22 Q. That's fine. We can turn to it. It's  
23 page 10 of Bove 2024.

24 A. Yes. And that's an adjusted hazard  
25 ratio, just not an odds ratio you referred to.

1 Q. Sure.

2 A. An incorrect measure of association.

3 Q. And that confidence interval by  
4 traditional convention is non-statistically  
5 significant, correct?

6 A. Correct. It crosses 1.

7 Q. And you didn't cite it in your Cagiano  
8 report, correct?

9 A. Correct. As I've stated multiple times,  
10 I haven't cited the confidence intervals anywhere  
11 in my reports.

12 Q. All right. Going back to your Cagiano  
13 report, turning to TVOC, Mr. Cagiano was in the  
14 high TVOC exposure category compared to Bove 2014a,  
15 correct?

16 A. Correct.

17 Q. And I think we discussed this earlier,  
18 but the point estimate for high TOV exposure was  
19 1.20 with a confidence interval of 0.17 to 8.65,  
20 correct?

21 A. Yes, that's correct.

22 Q. All right. Turning to PCE, Mr. Cagiano  
23 was in the medium exposure group, correct, compared  
24 to ATSDR 2018, correct?

25 A. Correct.

1 Q. And if you'll please turn to page 78 of  
2 ATSDR 2018, please. Just let me know when you are  
3 there.

4 A. Yes.

5 Q. Do you see that this table sets out the  
6 odds ratios for cumulative PCE exposure of Marines  
7 at Camp Lejeune compared with those at Camp  
8 Pendleton, correct?

9 A. Correct.

10 Q. And for bladder cancer in the medium  
11 exposure group, the odds ratio is 1.30 with a  
12 confidence interval of 0.76 to 2.23, correct?

13 A. Correct.

14 Q. And incidentally, for the low exposure  
15 group, the odds ratio is 1.33, with a confidence  
16 interval of 0.8 to 2.24, correct?

17 A. Correct.

18 Q. And Mr. Cagiano fell into or was in the  
19 high exposure group for PCE under Bove 2014,  
20 correct?

21 A. Yes, that's correct.

22 Q. And if you turn, please, to page 8 of  
23 Additional File 2.

24 Sorry. Excuse me. Page 9.

25 A. Yes, I'm there.

1           Q.     The OR for high exposure for PCE is 1.24  
2     with a confidence interval of 0.25 to 6.21 based on  
3     three bladder cancer cases, correct?

4           A.     Yes, that's correct.

5           Q.     And then you state that Mr. Cagiano also  
6     would have fallen within the high exposure group  
7     under Aschengrau 1993, correct?

8           A.     Correct.

9           Q.     And we already discussed the data that  
10    you are citing or relying on in Aschengrau 1993,  
11    correct?

12          A.     Correct.

13          Q.     And then for TCE, Mr. Cagiano fell into  
14    the high exposure group under ATSDR 2018, correct?

15          A.     Correct.

16          Q.     And if you turn to page 76 of ATSDR  
17    2018, please let me know when you are there.

18          A.     Yes, I'm there.

19          Q.     The high exposure group had a odds ratio  
20    of 0.93 with a confidence interval of 0.43 to 2.01,  
21    correct?

22          A.     Correct.

23          Q.     And that's not an elevated measure of  
24    association with bladder cancer, correct?

25          A.     Correct.

1 MR. RUZICKA: Objection to form. Go  
2 ahead.

3 A. Correct, based on this study.

4 Q. And then you state you did a sensitivity  
5 analysis, as you referred to a few minutes ago,  
6 correct?

7 A. Yes.

8 Q. And that reduced Mr. Cagiano's TCE  
9 exposure category to medium, correct?

10 A. Correct.

11 Q. And the OR for the medium TCE exposure  
12 category is 1.68 with a confidence interval of 1.0  
13 to 2.82, correct?

14 A. Correct.

15 Q. And we have already discussed I think  
16 how you did your sensitivity analysis, correct?

17 A. Correct.

18 Q. And for TCE you also state that  
19 Mr. Cagiano fell into the high exposure category  
20 under Bove 2014, correct?

21 A. Correct.

22 Q. And if you turn, please, to page 7 of  
23 Additional File 2. Are you there?

24 A. Yes.

25 Q. The odds ratio for high exposure to TCE



1 was 0.92 with a confidence interval of 0.15 to 5.55  
2 based on two bladder cancer cases, correct?

3 A. Correct.

4 Q. That's also not an increased measure of  
5 association with bladder cancer, correct?

6 A. Correct, based on that study.

7 Q. And for vinyl chloride Mr. Cagiano fell  
8 into the high exposure category under Bove 2014?

9 A. Yes, that's correct.

10 Q. And the OR was 0.91 with a confidence  
11 interval of 0.15 to 5.52, correct?

12 A. Correct.

13 Q. And same as before, that's not an  
14 elevated measure of association with bladder  
15 cancer, correct?

16 A. Correct. Yes, that's correct.

17 Q. And for benzene, Mr. Cagiano fell into  
18 the high exposure category under Bove 2014,  
19 correct?

20 A. Yes, that's correct.

21 Q. And the OR was 2.26 with a confidence  
22 interval of 0.37 to 13.78 based on three bladder  
23 cancer cases, correct?

24 A. Yes, that's correct.

25 Q. And you opined that Mr. Cagiano

1 experienced exposures at levels recognized to be  
2 hazardous to humans based on time on base, TVOC,  
3 PCE, TCE and benzene, correct?

4 A. Correct.

5 Q. And you also opined that the dose  
6 estimates generated by Dr. Reynolds represent a  
7 substantial exposure to PCE, TCE and benzene,  
8 correct?

9 A. Correct.

10 Q. Is it your opinion that Mr. Cagiano was  
11 exposed to sufficient levels of vinyl chloride to  
12 increase his risk of bladder cancer?

13 A. He was exposed to levels of vinyl  
14 chloride. You are asking specifically about vinyl  
15 chloride or --

16 Q. Yes.

17 A. I don't believe that he has -- was  
18 exposed to levels that have been recognized as  
19 hazardous to human health, but he was exposed to  
20 measurable levels that may have an unclear impact  
21 and should be considered substantial, particularly  
22 in combination with exposure to other compounds.

23 Q. Dr. Hatten, let me ask you this: If a  
24 exposure -- a cumulative exposure calculation is at  
25 a level that compared to the data from the studies

1 we have been discussing is associated with an  
2 elevated measure of bladder cancer, of association  
3 with bladder cancer, you would opine that that  
4 person has been exposed to levels recognized to be  
5 hazardous to human health, correct?

6 A. Correct. I think I've consistently  
7 testified to that.

8 Q. Right, but if they were not exposed to  
9 those levels or if the levels they were exposed to  
10 correspond to it, not to an elevated level of  
11 association with bladder cancer, are you still  
12 opining that they were exposed to levels sufficient  
13 or recognized to be hazardous to humans and to  
14 human health?

15 MR. RUZICKA: Objection to form.

16 A. No. I'm saying that his exposure was  
17 substantial and should be taken into consideration.  
18 For example, if I were seeing him in my office and  
19 he reported this level of exposure, I would  
20 consider it a substantial exposure that I should  
21 investigate more fully and not dismiss as a  
22 de minimis exposure.

23 Q. And is that -- labeling it a substantial  
24 exposure, that's not based quantitatively on the  
25 data that you cite in your studies, correct?

1           A.       No. That's a consideration of is this a  
2 similar exposure to what people are exposed to  
3 every day walking around versus a more substantial  
4 exposure, exposure that would be considered --  
5 considered greater than what the general population  
6 would be exposed to.

7           Q.       So substantial exposure involves a  
8 comparison to background or ambient levels of  
9 exposure to these chemicals; is that correct?

10          A.       As one factor, I think. It also matters  
11 whether this is a compound that has additional  
12 evidence for general causation with respect to the  
13 outcome of interest.

14                   If we were talking about something like  
15 a melanoma, I'm not aware that there is any data  
16 that links vinyl chloride to melanoma, and so I  
17 would say -- as from a general causation  
18 perspective, so I would say that that is not a --  
19 even at a measured -- a highly measured level or  
20 estimated level I would not consider that a  
21 substantial exposure because there is no data with  
22 respect to melanoma that I'm aware of, melanoma and  
23 vinyl chloride exposure, whereas that's not the  
24 case for vinyl chloride and bladder cancer. There  
25 are multiple studies that have looked at that and

1 found an elevated level of association.

2 The dose range or the exposure range  
3 that has been estimated for Mr. Cagiano doesn't  
4 fall into the ranges where it's been identified as  
5 an elevated measure of association, but it is a  
6 greater-than kind of background level of exposure.

7 Q. So there was a lot there. I want to ask  
8 you a couple of followup questions.

9 So would you agree that there are no  
10 background -- there is no data about background or  
11 ambient levels of exposure in your Phase III  
12 reports?

13 A. There is not. That is a -- that was a  
14 qualitative statement when developing this report.

15 Q. What do you mean by "a qualitative  
16 statement"?

17 A. As in it's not expected for people to  
18 experience substantial measured exposures of vinyl  
19 chloride in their everyday life, but we have  
20 measured levels that are or estimated levels that  
21 are appreciable in this case.

22 Q. Did you do any kind of research about  
23 what background exposures of vinyl chloride might  
24 exist in everyday life?

25 A. I did some reading in my -- in the

1 relevant literature in my general causation report,  
2 but I didn't do a specific search for that.

3 Q. So how can you say that Mr. Cagiano was  
4 exposed to more vinyl chloride than background  
5 levels of vinyl chloride in everyday life?

6 A. It's not a common chemical that people  
7 encounter in their everyday life. It's just not  
8 something that we walk around and encounter  
9 regularly.

10 Q. And is that something that you are  
11 basing on a specific scientific source or just your  
12 general sense?

13 A. My specific training and expertise as a  
14 toxicologist.

15 Q. But you can't point me to a document  
16 that you would draw that from?

17 A. Not while I'm sitting here. I didn't  
18 cite it as a -- I didn't have a specific reference  
19 or anything that I cited in my -- in this report,  
20 so...

21 Q. Do you have any other opinions in  
22 Mr. Criswell's case -- Mr. Cagiano's case, excuse  
23 me, that we haven't discussed?

24 A. Not that I'm aware of that -- that isn't  
25 listed in my report or that we have discussed.

1           Q.     And your materials considered list for  
2     Mr. Cagiano lists the Plaintiff-specific documents  
3     that you reviewed for him, correct?

4           A.     Correct, yes.

5           Q.     All right. I want to turn now to your  
6     report in Mr. Laramore's case. Do you have that in  
7     front of you?

8           A.     Yes.

9           Q.     And you agree that Mr. Laramore was at  
10    Hadnot Point between December 1983 and December  
11    1984, correct?

12          A.     Correct.

13          Q.     And he therefore falls into the category  
14    of one to six quarters for time on base for  
15    military personnel?

16          A.     Correct.

17          Q.     And that category under Bove 2024 did  
18    not have an elevated measure of association with  
19    bladder cancer; is that correct?

20          A.     That's correct.

21          Q.     And then you also compare Mr. Laramore  
22    to civilians on base for 1 to 21 quarters, correct?

23          A.     Correct.

24          Q.     And I think I asked this earlier, but  
25    just to ask it here again, is it your opinion that

1 any Marine or Navy personnel on base for at least  
2 one quarter are at an increased risk for bladder  
3 cancer under this exposure metric?

4 A. I'm saying that that has been associated  
5 with an -- with an elevated -- it has an elevated  
6 measure of association with the outcome of  
7 interest, which is bladder cancer.

8 Q. And looking at TVOC, Mr. Laramore fell  
9 into the medium exposure category under Bove 2014,  
10 correct?

11 A. Yes.

12 Q. And I think we discussed the odds ratio  
13 for that category, correct?

14 A. The hazard ratio, yes, we have.

15 Q. Hazard ratio. And turning to PCE, he  
16 falls into the medium exposure category under ATSDR  
17 2018, correct?

18 A. Yes, that's correct.

19 Q. And I think we discussed that data,  
20 correct?

21 A. I believe so.

22 Q. And for PCE again he also is in the  
23 medium exposure category under Bove 2014?

24 A. Correct.

25 Q. And I think we discussed that data,



1 correct?

2 A. Yes, I believe we have.

3 Q. And you also state that he would fall  
4 into either the low or high exposure category under  
5 Aschengrau 1993, depending on whether you include  
6 latency or not, correct?

7 A. Correct.

8 Q. And we already discussed Aschengrau  
9 1993?

10 A. Yes, that's correct.

11 Q. And for TCE, he falls into the medium  
12 exposure group under Bove 2024, correct?

13 A. Yes, that's correct.

14 Q. And I don't think we've discussed this  
15 yet, but if you turn to page 7 on Additional File  
16 2, please, do you see that the OR for TCE, the  
17 hazard ratio is 2.69 with a confidence interval of  
18 0.63 to 11.46 based on five cases?

19 A. Yes, that's correct.

20 Q. And turning to vinyl chloride, he was in  
21 the high exposure category under Bove 2014 prior to  
22 a sensitivity analysis, correct?

23 A. Yes, that's correct.

24 Q. And we discussed that data, correct?

25 A. Yes, we have.

1 Q. And then you performed a sensitivity  
2 analysis, and as a result of that analysis even  
3 fell into the medium exposure group?

4 A. Yes, that's correct.

5 Q. And I think we've discussed that data,  
6 correct?

7 A. I believe so.

8 Q. And just to be clear, if you go to the  
9 last page of your appendix, the sensitivity  
10 analysis results are on the right-hand side; is  
11 that correct?

12 A. Yes, that's correct.

13 Q. And turning back to benzene, he fell  
14 into the medium exposure group under Bove 2014,  
15 correct?

16 A. Yes, that's correct.

17 Q. And we discussed that data, correct?

18 A. I believe so.

19 Q. And then you opine that Mr. Laramore  
20 experienced exposures of levels recognized to be  
21 hazardous to humans for time on base, TVOC, TCE,  
22 PCE, vinyl chloride and benzene, correct?

23 A. Correct.

24 Q. And you also opine that the dose  
25 estimates by Dr. Reynolds represents substantial

1       rather than de minimis exposures to all four  
2       chemicals at issue, correct?

3             A.       Correct.

4             Q.       And you considered the transcript of his  
5       deposition in a single document, correct?

6             A.       Yes, that's correct.

7             Q.       Do you have any opinions of  
8       Mr. Laramore's case that we haven't discussed?

9             A.       Only anything else that's listed in my  
10      written report.

11            Q.       Is there anything else in your report we  
12      haven't discussed?

13            A.       I also mentioned that he falls in the  
14      levels recognized to be hazardous to human health.  
15      The last sentence refers to the Aschengrau study  
16      and that he falls into elevated measures of  
17      association in that study as well.

18            Q.       And we discussed that study already,  
19      correct?

20            A.       Yes, that's correct.

21            Q.       All right. I want to turn now to Dyer,  
22      which is the last report. Do you have Dyer in  
23      front of you, sir?

24            A.       Yes, I do.

25            Q.       And this is your report in Miss Dyer's

1 case, correct?

2 A. Correct.

3 Q. And you include the -- in the analysis  
4 tables the summed variable totals from  
5 Dr. Reynolds, correct?

6 A. Yes, I believe so.

7 Q. Are you aware that -- and that's based  
8 off -- well, strike that.

9 Are you aware that Dr. Reynolds later  
10 disclosed a corrected appendix for Miss Dyer that  
11 altered her calculations?

12 A. Not -- not that I'm aware of. I don't  
13 believe I was informed of that.

14 Q. I'm going to know hand you -- are we on  
15 52? 53, I'm sorry.

16 (Exhibit 53 was marked for  
17 identification and is attached to  
18 the transcript.)

19 BY MR. ORTIZ:

20 Q. And I'm handing you Hatten Exhibit 53,  
21 the corrected appendix from Ms. Dyer. Have you  
22 ever seen this document before?

23 A. Not that I'm aware of.

24 Q. And I apologize for the tiny font, but  
25 that's how we received it. Do you agree that there

1 are changes made from Dr. Reynolds' original  
2 appendix for Miss Dyer in this document?

3 A. I can only compare to the table I have  
4 in my appendix.

5 Q. I think we have the appendix for  
6 Miss Dyer as well. Do you need to go off the  
7 record to review that?

8 A. I'm saying that my -- this is my  
9 appendix. There is a table taken from Dr. Reynolds  
10 then she has a corresponding table. This is a  
11 corrected one. Is that accurate? That seems to be  
12 blown up and readable. Is there something specific  
13 we should discuss on this?

14 Q. Yeah. So if you go to the first page of  
15 the corrected appendix for Miss Dyer, can you do  
16 that, please. Do you see the exposure dates?

17 A. Yes.

18 Q. And do you see the date for the first  
19 exposure begins August 5th, 1958?

20 A. Yes.

21 Q. If you go to -- do you have, Doctor, the  
22 report, the excerpts I gave you from Dr. Reynolds'  
23 report in front of you as well?

24 A. Yes.

25 Q. And if you turn to the first page of the

1 original appendix for Miss Dyer, can you please do  
2 that? And just let me know when you are there.

3 A. Do you know which appendix it is?

4 Q. I believe it's Appendix 3.

5 A. Okay.

6 Q. Do you see that the exposure dates begin  
7 in May of 1958?

8 A. Yes, I see that.

9 Q. Okay. And if you turn to -- well, let  
10 me ask you this: Did there appear to be any other  
11 changes between these two appendices?

12 A. I've reviewed all the entries here, so I  
13 don't have an opinion one way or another without  
14 spending a substantial portion of time reviewing  
15 all of them.

16 Q. So if you go to your -- and I apologize.  
17 I know there is a lot of documents swimming around,  
18 but if you go to your Dyer report -- can you do  
19 that, please.

20 A. Yes.

21 Q. And you see that you included the totals  
22 in the bottom left-hand corner?

23 A. Correct.

24 Q. And those were not in Dr. Reynolds'  
25 original summed variable totals for Miss Dyer,

1 correct?

2 A. Yeah. I think in my rationale and  
3 methods, the last sentence, I say I apportion her  
4 exposures as 76 percent Tarawa Terrace and 24  
5 percent Hadnot Point. So I think I multiplied the  
6 cumulative exposure for each water system by those  
7 proportions to come up with a total in that bottom  
8 category, that bottom --

9 Q. Okay. Thank you.

10 A. -- table.

11 Q. Thank you for clarifying that.

12 If you also look at the summed variable  
13 totals in the corrected appendix, do you see the  
14 totals in the bottom left corner?

15 A. Yes.

16 Q. Can you tell me why those numbers are  
17 different from your numbers?

18 A. I think I did my own apportioning in  
19 this, and I don't know what her methods were for  
20 developing that.

21 Q. And if you compare the summed variable  
22 totals in the corrected appendix for Miss Dyer to  
23 the summed variable totals in the original appendix  
24 for Ms. Dyer, aside from the numbers in the bottom  
25 left-hand corner, do you agree that the remaining

1 numbers appear to have remained the same?

2 A. Sorry. I have to find that section  
3 again.

4 Q. That's fine.

5 MR. RUZICKA: I think he was referring  
6 to the corrected.

7 MR. ORTIZ: Yeah, I'm comparing the  
8 corrected appendix for Ms. Dyer from  
9 Dr. Reynolds to the original appendix for  
10 Ms. Dyer from Dr. Reynolds.

11 THE WITNESS: Sabotaging me.

12 MR. RUZICKA: Yeah, I know.

13 BY THE WITNESS:

14 A. Yeah, I don't recall specifically, but I  
15 presume this was the table provided to me and I had  
16 to do my own apportioning because there wasn't an  
17 apportionment in here.

18 BY MR. ORTIZ:

19 Q. Sure. And my question was, aside from  
20 the bottom left-hand corner, would you agree that  
21 the remaining numbers appear to have remained the  
22 same?

23 A. They appear to based on a brief review.

24 Q. And as discussed, Dr. Reynolds appears  
25 to have started the exposure dates from August of



1 1958 in the corrected appendix as opposed to May of  
2 1958, correct?

3 A. That's what -- that's how it appears,  
4 but I did not author that report or anything.

5 Q. Does it seem odd that the final numbers  
6 for Miss Dyer remain the same given those changes?

7 MR. RUZICKA: Objection, form.

8 BY MR. ORTIZ:

9 Q. You can answer.

10 A. I don't know how -- what her calculation  
11 was, so I'm not sure what went into it.

12 Q. Is it fair to say you need to review  
13 Dr. Reynolds' corrected appendix in detail since  
14 you have not seen it before today?

15 MR. RUZICKA: Objection, form.

16 A. The final numbers in the corrected  
17 appendix match the exposure numbers for the water  
18 system-specific values that I use to then apportion  
19 it. So to speak any more about her corrected  
20 appendix I would have to review it in detail, but I  
21 don't see a discrepancy between the numbers that I  
22 was provided that appear to be consistent with this  
23 original chart and the numbers that are on the  
24 corrected appendix.

25 Q. Sure. And as discussed, I think you

1 testified that your apportionment resulted in  
2 numbers that were different in the bottom left-hand  
3 corner than Dr. Reynolds' numbers in the bottom  
4 left-hand corner of her corrected appendix,  
5 correct?

6 A. Correct. My numbers, the way I  
7 apportioned it, are lower than her estimates.

8 Q. And you said that you could not explain  
9 why that was?

10 A. I just don't have direct knowledge of  
11 how she apportioned the various water systems.

12 Q. And Miss Dyer was at Camp Lejeune  
13 between August 1958 and June of 1964 and then  
14 between May of 1965 and January 1973, correct?

15 A. I would have to review all the dates but  
16 -- because I think in my report I just list the  
17 total range from her first time on base to her  
18 last.

19 Q. And are you aware that she lived off  
20 base for a period of time, from June of 1964 to May  
21 of 1965?

22 A. I just don't recall the details. I  
23 would have to review what information was provided  
24 to me.

25 Q. And do you agree that there is no actual

1 sampling data for the period that Miss Dyer lived  
2 in Camp Lejeune?

3 A. I'm not aware that there is any sampling  
4 data from that period.

5 Q. She was a child during that time,  
6 correct?

7 A. At least -- I believe that she was a  
8 child and a teenager, and I don't recall exactly  
9 how old she was when she last lived on base.

10 Q. Are you aware that Dr. Reynolds  
11 calculated Miss Dyer's exposure based on the  
12 assumption that Miss Dyer was drinking as a child  
13 almost as much water as a Marine in training?

14 A. I think I -- there were some questions  
15 about that in her deposition transcript, but I  
16 don't know all the details of her calculations.

17 Q. Do you think that's a reasonable  
18 assumption?

19 MR. RUZICKA: Objection, form,  
20 foundation.

21 A. If I recall from the deposition  
22 transcript, she stated that or from Dr. Reynolds'  
23 deposition transcript she stated that she was  
24 basing that upon Miss Dyer's direct testimony.

25 Q. And her time on base, Miss Dyer was

1       there between 1958 and 1973, which was before the  
2       1975 to 1985 time period for Marines under Bove  
3       2024, correct?

4           A.       Correct. The Bove studies started after  
5       she left base.

6           Q.       Right. So -- and you recall that  
7       Mr. Raymond and the Bove studies started after he  
8       left base, correct?

9           A.       Correct.

10          Q.       And then you stated that a lower one to  
11       six quarters' period of exposure was a more  
12       appropriate proxy for Mr. Raymond as a result,  
13       correct?

14          A.       Correct. I believe his exposure  
15       estimates were both similar to that -- that  
16       exposure estimates for that duration.

17          Q.       And why didn't you say the same for  
18       Miss Dyer in your Phase III report?

19          A.       I do discuss that.

20          Q.       Right, and you reach a different  
21       conclusion?

22          A.       I'm not sure what your question is.  
23       Could you explain your question?

24          Q.       Why do you not put Miss Dyer in a lower  
25       proxy category like you did for Mr. Raymond given

1       that she was there earlier like Mr. Raymond?

2             A.       I do. I do put her in a lower category.

3             Q.       I thought you said, "Although this  
4       is" -- this is beginning at the top of page 3.

5                     "Although this is not the same exposure  
6       period studied, the estimated exposure for each  
7       toxin falls within the range of exposures estimated  
8       between October 1972 and December 1985. Thus, it's  
9       reasonable to conclude that Miss Dyer's exposure is  
10      similar enough to civilian exposures from October  
11      1972 to December 1985 such that the elevated  
12      measure of exposure for development" -- "measure of  
13      association for development of bladder cancer for  
14      this population is applicable to her exposure."

15                    Did I read that correctly?

16             A.       Yeah, you read that correctly. Let me  
17       just look at this.

18             Q.       I guess let me try to clarify it this  
19       way: Are you saying that she was there for long  
20       enough that her exposure was similar to someone who  
21       was there from 1 to 21 quarters as a civilian even  
22       though she was there at an earlier time period?

23             A.       Yes. I believe that is what I was  
24       saying in here. I'm just confirming that I  
25       transposed the correct hazard ratio.

1                   So even though she was there for 54.7,  
2                   quarters, her exposures were more similar to a 1 to  
3                   21 quarter during that time period.

4                   Q.       And similar in intensity?

5                   A.       Similar in terms of the -- what the  
6                   range of cumulative exposures would be during that  
7                   time period.

8                   Q.       And you opine that Miss Dyer experienced  
9                   exposures at levels recognized to be hazardous to  
10                  humans for all of your exposure metrics except  
11                  benzene, correct?

12                  A.       I believe that is correct.

13                  Q.       And that's based on your review of the  
14                  data from the same set of studies we've discussed  
15                  today, correct?

16                  A.       That's correct.

17                  Q.       And we've discussed all that data for  
18                  those different metrics, correct?

19                  A.       Yes, I believe we have.

20                  Q.       And you also opine that the dose  
21                  estimates that are generated by Dr. Reynolds for  
22                  Miss Dyer represent substantial exposure to PCE,  
23                  TCE and vinyl chloride, correct?

24                  A.       I believe I also include benzene as a  
25                  substantial exposure.

1 Q. And is that based on the same  
2 considerations that you articulated during our  
3 discussion earlier?

4 A. Yes, that is.

5 Q. And for Miss Dyer's case you reviewed  
6 her deposition transcript and four documents that  
7 are identified in your materials considered list,  
8 correct?

9 A. Yes, that's correct.

10 Q. And have we discussed all of your  
11 opinions in Miss Dyer's case?

12 A. I believe so. I mean, they are  
13 articulated in more detail in this report, but I  
14 believe we have covered all those opinions.

15 Q. I want to talk for a few minutes about  
16 the Yu study that you've referenced. I guess  
17 first, you said earlier that that was not listed on  
18 a supplement to your materials considered list,  
19 correct?

20 A. I think the preprint was listed on a  
21 materials considered, but the final version has not  
22 been listed.

23 Q. Would you agree that you did not have  
24 individual exposure data?

25 MR. RUZICKA: Objection, form.

1           A.     If I recall, it was -- it was estimated,  
2     or I don't recall if it was estimated or based on a  
3     geographic area with direct measurements. I would  
4     have to review the methods to confirm.

5           Q.     And that was based off benzene ambient  
6     air, correct?

7           A.     Correct.

8           Q.     Not water?

9           A.     Correct.

10          Q.     And the authors noted that the results  
11     should be interpreted with caution, correct?

12          A.     I would have to review the context for  
13     that statement, if that's a correct statement  
14     that's in there.

15          Q.     And they stated that there was -- they  
16     lacked data on indoor emissions of benzene,  
17     correct?

18          A.     If you are going to ask specific  
19     questions about a study, I would prefer to have the  
20     study available to look at.

21          Q.     And if that's what they say in there,  
22     you wouldn't have any reason to disagree with that?

23                   MR. RUZICKA: Objection to form and  
24     foundation.

25          A.     I may or may or may not. I would have



1 to review the context of it.

2 Q. You don't recall as you sit here?

3 A. I don't.

4 Q. And do you recall that they found  
5 elevated associations for 18 site-specific cancers?

6 A. Again, if you are going to ask specific  
7 questions, I would prefer to have the manuscript in  
8 front of me to --

9 Q. You don't recall as you sit here?

10 A. I don't recall the number of cancers  
11 that they found associations.

12 Q. And would you agree that everyone is  
13 exposed to some carcinogens every day?

14 MR. RUZICKA: Objection, form.

15 A. There is some exposure to some -- I  
16 would agree that everyone has some exposure to some  
17 carcinogens every day.

18 Q. Would you agree that people are exposed  
19 to TCE every day?

20 A. Most -- most likely to some degree.

21 Q. In ambient concentrations in air, for  
22 example?

23 A. Yes, I believe that's correct.

24 Q. Did you ever try to research what  
25 background exposures to TCE in ambient

1 concentrations in air would be?

2 A. I've reviewed that material, but I don't  
3 recall what the numbers are.

4 Q. And do you recall what material you are  
5 referring to?

6 A. I believe there is discussion of it in  
7 various monographs such as ATSDR, some of the EPA  
8 IRIS data. I just don't recall any numbers from  
9 that.

10 Q. And are you aware, just for another  
11 example, that people are exposed to benzene every  
12 day?

13 A. At least in the industrial world they  
14 are. I don't know if that holds true everywhere,  
15 but...

16 Q. Do you recall giving testimony at your  
17 last deposition in May about benzene levels and raw  
18 bananas?

19 A. I recall a question about that. I don't  
20 recall the specific testimony, no.

21 Q. And you agree that cigarettes have  
22 benzene in them, correct?

23 A. Cigarettes are a source of benzene  
24 exposure.

25 Q. Have you ever calculated someone's

1 exposure to benzene from cigarettes?

2 A. Not that I recall that. I may or may  
3 not have done that at some point, but not that I  
4 specifically recall.

5 Q. As you sit here right now, you don't  
6 recall specifically a time doing that?

7 A. No.

8 Q. And you would agree that smoking is a  
9 major risk factor for bladder cancer?

10 MR. RUZICKA: Objection, form.

11 A. Smoking is a risk factor for bladder  
12 cancer. I did not review the literature  
13 surrounding, directly surrounding smoking and  
14 bladder cancer, though, for this.

15 Q. Do you know how many, approximately what  
16 percentage of bladder cancer cases are caused by  
17 smoking?

18 A. I don't have a good estimate for you.

19 Q. You just don't know?

20 A. I don't -- I don't have a specific  
21 estimate for you.

22 Q. Does approximately 40, 50 percent sound  
23 correct?

24 A. I don't have a way to confirm or deny  
25 that.

1 Q. And are you aware that several of these  
2 Plaintiffs have significant smoking histories?

3 MR. RUZICKA: Objection, form,  
4 foundation.

5 A. I think some of them may have been asked  
6 about smoking in their depositions, and that would  
7 be the only source of information that I have on  
8 their smoking history.

9 Q. For example, Mr. Raymond has a  
10 50-packyear smoking history, correct?

11 A. I don't recall if that was stated in his  
12 deposition or not, but I don't have another way to  
13 determine that.

14 Q. And you didn't calculate Mr. Raymond's  
15 or attempt to calculate Mr. Raymond's cumulative  
16 exposure to benzene from cigarettes, correct?

17 A. I did not.

18 Q. And do you recall seeing in  
19 Mr. Laramore's deposition that he has a 30- to  
20 60-packyear smoking history?

21 A. I don't recall whether that is correct  
22 or not.

23 Q. And you didn't try to calculate, I  
24 assume, Mr. Laramore's cumulative exposure to  
25 benzene from cigarettes, correct?

1           A.     I did not.

2           Q.     So you can't say whether Mr. Raymond or  
3 Mr. Laramore's cumulative exposures to benzene from  
4 cigarettes exceeded their exposures to benzene at  
5 Camp Lejeune?

6           A.     I -- I did not attempt to do that. I  
7 don't know that I had sufficient information to do  
8 that.

9           Q.     Right, and as a result of not attempting  
10 to do that, you can't tell me if it would be more  
11 or less, right? You just didn't do that analysis?

12          A.     I just didn't do that analysis, that's  
13 correct.

14          Q.     And, I mean, even Mr. Criswell smoked.  
15 Did you see in his deposition that he smoked two to  
16 three cigarettes per day for approximately two  
17 years? Do you recall that?

18          A.     I don't recall that specifically; that I  
19 would have to review his deposition to confirm or  
20 refute that.

21          Q.     I'm sorry. Go ahead. Are you done?

22          A.     Yes.

23          Q.     Two cigarettes per day for two years  
24 would be approximately 1,450 cigarettes, correct?

25                 MR. RUZICKA: Objection, form,

1 foundation.

2 BY MR. ORTIZ:

3 Q. You can answer.

4 A. I think that math is correct. It's  
5 somewhere around there, but...

6 Q. And three cigarettes per day for two  
7 years would be approximately 2,190 cigarettes,  
8 correct?

9 A. That sounds approximately correct.

10 Q. And are you aware that the CDC defines  
11 nonsmoker as an adult who smoked less than a  
12 hundred cigarettes in their lifetime?

13 A. I don't recall what the CDC definition  
14 is for a nonsmoker.

15 Q. And if that was the CDC definition, that  
16 would put Mr. Criswell above the threshold for  
17 being a nonsmoker, correct?

18 MR. RUZICKA: Objection, form.

19 A. That's based on the CDC definition that  
20 it's not necessarily the same consideration for  
21 bladder cancer. A lot of times it depends on what  
22 you are considering smoking versus nonsmoking  
23 depending on the outcome of interest, or sometimes  
24 it also changes depending on the duration from less  
25 smoking, whether you are considered to have an

1 equivalent risk depending on the outcome of  
2 interest.

3 Q. And even one cigarette per day for two  
4 years would be approximately 730 cigarettes, right?

5 A. Yes, that would be approximately 730.

6 Q. 730 is more than 100?

7 A. 730 is more than 100.

8 Q. So if Miss Dyer smoked less than a pack  
9 per day but a cigarette per day for two years, that  
10 would be more than a hundred?

11 MR. RUZICKA: Objection, form,  
12 foundation.

13 A. Could you repeat the question? I'm  
14 sorry. I just...

15 Q. Sure. If Miss Dyer smoked a cigarette  
16 per day for two years, that would be approximately  
17 730 cigarettes, right?

18 MR. RUZICKA: Same objection.

19 A. Yeah, I think I answered that one. What  
20 was your next question?

21 Q. That would be more than a hundred  
22 cigarettes?

23 A. That, 730 is more than 100.

24 Q. Are you aware that Miss Dyer's treating  
25 physician, Dr. McCarthy, testified about higher

1 rates of urological cancer in the area she lived in  
2 Southeast North Carolina near the Cape Fear River?

3 A. I don't have any knowledge of  
4 Dr. McCarthy's testimony.

5 Q. So you can't agree or disagree with it?

6 A. Correct. I just have no knowledge about  
7 his testimony.

8 Q. And as a general matter, Dr. Hatten, you  
9 did not calculate or attempt to calculate any of  
10 these five bladder cancer Plaintiffs' cumulative  
11 exposures to the chemicals at issue from any source  
12 other than the water at Camp Lejeune, correct?

13 A. Correct. I just evaluated their  
14 exposures at Camp Lejeune in isolation.

15 Q. And we touched on this a little bit, but  
16 you did not compare their cumulative exposures to  
17 any data concerning background exposures to the  
18 chemicals at issue, correct?

19 A. I didn't make an explicit comparison.

20 Q. And so you can't say whether any of  
21 these five Plaintiffs might have been exposed to  
22 higher cumulative amounts of the chemicals at issue  
23 from background exposures, correct?

24 MR. RUZICKA: Objection, form.

25 BY MR. ORTIZ:



1 Q. You can answer.

2 A. I just can't say one way or another.  
3 I have not evaluated that question.

4 Q. And likewise, you can't say whether  
5 accumulative exposures for each of these five  
6 bladder cancer Plaintiffs from any other source  
7 than Camp Lejeune might have exceeded their  
8 cumulative exposures from water at Camp Lejeune,  
9 correct?

10 A. I just haven't analyzed that, so I don't  
11 know.

12 Q. Those are just not analyses that you  
13 have done?

14 A. Correct.

15 MR. ORTIZ: Now is a good time for a  
16 break, if you want.

17 MR. RUZICKA: Sure. Are you -- we can  
18 go off.

19 THE VIDEOGRAPHER: The time is 2:39.  
20 We are off the record.

21 (Recess taken.)

22 THE VIDEOGRAPHER: The time is  
23 2:49 p.m. We are back on the record.

24 BY MR. ORTIZ:

25 Q. All right. Dr. Hatten, you testified

1 earlier about your view of water models in your  
2 clinical practice as a medical toxicologist,  
3 correct?

4 A. Correct.

5 Q. Did any of those water models attempt to  
6 estimate levels of chemicals going back several  
7 decades?

8 A. I don't recall if they did or did not.

9 Q. Is it fair to say as you sit here today  
10 that you don't recall one that did?

11 A. I just don't recall. I don't recall the  
12 specifics of the timeframe for -- for those models.

13 Q. Can you give me an estimate of how many  
14 water models you have evaluated?

15 A. I think I said earlier around 20, but I  
16 don't know an exact number.

17 Q. And you said earlier that whether  
18 something is a substantial exposure or a de minimis  
19 exposure sometimes requires a qualitative  
20 determination, correct?

21 A. Yes, I think I said that before.

22 Q. Are you offering a quantitative opinion  
23 on what defines a substantial exposure as opposed  
24 to a de minimis exposure?

25 A. No, I am not.

1 Q. And you consider yourself as to be an  
2 epidemiologist, correct?

3 A. Correct.

4 Q. And you testified about your education,  
5 training and experience in epidemiology at your  
6 last deposition?

7 A. I believe so. It's typically part of  
8 the deposition discussions.

9 Q. Would you agree you have never conducted  
10 any published epidemiological studies relating to  
11 cancer?

12 A. Not with cancer as a specific endpoint.  
13 I have performed epidemiologic studies that may  
14 have included cancer outcomes, but not -- not where  
15 the design is specifically oriented towards cancer  
16 as an endpoint.

17 Q. So can you give me an example of what  
18 kind of a study?

19 A. I've conducted studies using a few  
20 different toxicology databases. Some of those may  
21 have cancer as an endpoint in there, but they  
22 weren't specifically oriented toward -- the studies  
23 I conducted were not specifically oriented toward  
24 cancer as an outcome.

25 Q. Were any of those published?

1           A.       Multiple; I publish multiple  
2       epidemiologic studies using various toxicology  
3       databases.

4           Q.       All right. Can you go back to -- I  
5       don't recall which exhibit number it was, but the  
6       transcript of your deposition in the Zantac  
7       litigation.

8                   MR. RUZICKA: 52.

9                   MR. ORTIZ: 52, thank you.

10                  THE WITNESS: Or 49, I think.

11       BY MR. ORTIZ:

12           Q.       49, thank you.

13                   Can you turn to page 32, please. Just  
14       let me know when you are there.

15                   Are you there?

16           A.       Yes.

17           Q.       I'm going to read from line 17.

18                   "Question: Have you ever conducted any  
19       epidemiological studies relating to cancer at all?

20                   "Mr. Sheehan: Objection.

21                   "Answer: Not -- not -- none that have  
22       been published. I have -- during my public health  
23       training, I did some evaluation of databases with  
24       cancer outcomes within the field of toxicology, but  
25       nothing that was ever published."

1 Did I read that correctly?

2 A. Yes, that's correct.

3 Q. And does that remain true today?

4 A. Yeah. I don't think that's different  
5 than the answer I just gave. I was saying that  
6 some of those databases may have had -- that I  
7 published on may have cancer as an outcome, but it  
8 wasn't a specific outcome I was studying in those,  
9 in those studies. So it may have been an outcome  
10 that was listed at some point in a table somewhere,  
11 but I don't -- it wasn't the specific outcome I was  
12 looking at in the study, so...

13 Q. So fair to say that you have never  
14 conducted a published epidemiological study where  
15 cancer was the specific outcome being evaluated?

16 A. That is correct.

17 Q. Thank you. And you are not an  
18 oncologist either, correct?

19 A. I am not an oncologist.

20 Q. Dr. Hatten, I'm going to show you Hatten  
21 exhibit --

22 MR. ORTIZ: We are on 54?

23 MR. ANWAR: Yes.

24 (Exhibit 54 was marked for  
25 identification and is attached to

1 the transcript.)

2 BY MR. ORTIZ:

3 Q. And before we look at that document, you  
4 are board-certified in emergency medicine by the  
5 American College of Emergency Physicians, correct?

6 A. Yes, that's correct.

7 Q. And have you ever seen this document  
8 that I handed you before?

9 A. I believe I have, at least some version  
10 of it. I don't know if there is a prior version  
11 that I've reviewed.

12 Q. And does it appear to be a policy  
13 statement from the American College of Emergency  
14 Physicians approved June 2021 entitled Expert  
15 Witness Guidelines for the Specialty of Emergency  
16 Medicine?

17 A. Yes.

18 Q. And you agree it sets out various  
19 guidelines for the specialty, expert witness  
20 guidelines for the specialty of emergency medicine,  
21 correct? Strike that. Let me ask that again.

22 Do you agree that it sets out guidelines  
23 for emergency physicians serving as expert  
24 witnesses in litigation, correct?

25 A. Yes, I believe that's the purpose of

1 this.

2 Q. And I've highlighted a few just for  
3 convenience. The first one I've highlighted says,  
4 "The expert witness should not provide expert  
5 medical testimony that is false, misleading or  
6 without medical foundation," and then the portion  
7 I've highlighted, "A key to this process is a  
8 thorough review of available and appropriate  
9 medical records and contemporaneous literature  
10 concerning the case being examined."

11 Did I read that correctly?

12 A. You read that correctly. I will point  
13 to the first sentence of this document, though. It  
14 says, "Expert witnesses are asked to render  
15 opinions as to assess the requisite standard of  
16 care pertaining to emergency physicians, cases of  
17 alleged medical malpractice and peer review."

18 I don't know what the relevance of this  
19 document is to the testimony I'm providing in this  
20 case.

21 Q. So do you think these guidelines don't  
22 apply to your testimony in this case?

23 A. That's not what I'm saying. I'm saying  
24 they apply to testimony about standard of care for  
25 emergency physicians. That's what this document is

1 written for. That doesn't necessarily mean that  
2 they wouldn't apply to testimony in this case, but  
3 they are not commenting on the kind of testimony  
4 I'm providing in this case.

5 Q. Do you think -- well, so you would agree  
6 that they are not limited to cases of alleged  
7 medical malpractice in peer review, correct?

8 MR. RUZICKA: Objection, form,  
9 foundation.

10 A. I think the first sentence describes the  
11 intent of this document, and it is intended to  
12 communicate standards for physicians testifying  
13 about standard of care.

14 Q. Do you think that you should follow  
15 these guidelines in this litigation?

16 A. If I were testifying about the standard  
17 of care in this case, for an emergency physician it  
18 would be appropriate for me to follow these  
19 guidelines.

20 Q. Are you testifying about the standard of  
21 care for an emergency physician?

22 A. I'm not.

23 Q. So do you think it is appropriate for  
24 these guidelines?

25 A. If they are general principles that are



1 appropriate for my testimony, but anything that is  
2 specific to standard of care testimony is likely  
3 not applicable.

4 Q. The second one I've highlighted just to  
5 go through those. "A medical expert's opinion  
6 should reflect the state of medical knowledge at  
7 the time of the event giving rise to the case."

8 Did I read that correctly?

9 A. You read that correctly. Again, that's  
10 referring to standard of care discussions because  
11 the standard of care changes as medical knowledge  
12 changes and technology changes, and these are all  
13 again in reference to standard of care, emergency  
14 physicians testifying toward standard of care.

15 Q. And the next one is, "The expert witness  
16 should review the medical facts in a thorough, fair  
17 and objective manner and should not exclude any  
18 relevant information to create a view favoring  
19 either the plaintiff or the defendant." Is that  
20 correct?

21 A. You read that correctly.

22 Q. Do you think it's important to follow  
23 guidelines as an expert witness in litigation?

24 MR. RUZICKA: Objection, form and  
25 foundation.

1           A.     I think it's important to follow  
2 specialty guidelines that are applicable to your  
3 testimony.

4           Q.     Does the American College of Emergency  
5 Physicians have expert witness guidelines that  
6 would apply to toxic tort litigation like this one?

7           A.     Not that I'm aware of.

8           Q.     And are you aware of any other expert  
9 witness guidelines that are promulgated by the  
10 American College of Emergency Physicians?

11          A.     Not specific to expert witness  
12 testimony.

13          Q.     Dr. Hatten, we discussed each of your  
14 Phase III reports in some detail. Is it fair to  
15 say that for each Plaintiff you reach the same  
16 opinion as to at least one of the chemicals at  
17 issue?

18                   MR. RUZICKA: Objection, form.

19          A.     I think for each Plaintiff their  
20 exposures reached a level that has been  
21 demonstrated to be hazardous to human health based  
22 on an elevated measure of association with bladder  
23 cancer; and I think it's especially important  
24 because this is primarily based on studies of the  
25 exposures at Camp Lejeune and of people who were on

1 base at Camp Lejeune or spent time on base at Camp  
2 Lejeune frequently; and when evaluating exposures,  
3 we don't have direct studies of the exposure of  
4 concern or the cohort of concern, and we're having  
5 to make a determination of how similar the  
6 exposures are and how similar the cohort is to what  
7 has been -- to the plaintiff at issue or the  
8 exposed individual at issue.

9 In this case we have direct evidence  
10 from studies of that direct cohort, which, to me is  
11 I think the strongest possible evidence you can  
12 have from an epidemiologic perspective.

13 Q. And did you review the general causation  
14 reports of the United States experts, Dr. Julie  
15 Goodman and Dr. Peter Shields?

16 A. I believe so. I reviewed Dr. Goodwin's  
17 and I believe I reviewed Mr. Shields. I don't  
18 recall specifically.

19 Q. Do you recall criticisms they had about  
20 the methodologies used in some of the  
21 epidemiological studies that we discussed here  
22 today, such as Bove 2024 and Bove 2014?

23 A. I recall they expressed criticisms. I  
24 don't think there is any -- any study that is  
25 beyond criticism. And I think -- and it's part of

1 the scientific process every study author will  
2 describe limitations of their own studies.

3 Q. Did you account for or consider those  
4 limitations when you were using those studies that  
5 we've discussed here today?

6 A. Yes, I considered those.

7 Q. Do you think it's possible that someone  
8 could have been at Hadnot Point or Tarawa Terrace  
9 between 1953 and 1987 without reaching levels of  
10 exposure that are hazardous to humans or  
11 substantial for at least one or more of the  
12 chemicals at issue?

13 MR. RUZICKA: Objection, form and  
14 foundation.

15 A. I think it's beyond possible. I think I  
16 identified multiple plaintiffs who I didn't believe  
17 that their exposures met the -- met levels that  
18 were hazardous to human health based on the  
19 estimates of the exposure, depending on what the  
20 compound you are discussing.

21 MR. ORTIZ: I know we just took a  
22 break, but can I just take a two-minute break  
23 and confer with my colleague?

24 MR. RUZICKA: Sure.

25 THE VIDEOGRAPHER: The time is

1           3:02 p.m. We are off the record.

2                       (Recess taken.)

3                       THE VIDEOGRAPHER: The time is

4           3:04 p.m. We are back on the record.

5 BY MR. ORTIZ:

6           Q. All right. Dr. Hatten, just to close  
7 this out, what did you do to prepare for this  
8 deposition?

9           A. I met with the attorneys twice, I  
10 believe, and I reviewed my general causation  
11 opinion; Dr. Reynolds' deposition testimony; and my  
12 -- each of my specific causation opinions or the  
13 specific -- plaintiff-specific opinions we have  
14 discussed today as well as the Bove studies or the  
15 relevant Bove studies for those opinions; reviewed  
16 the Yu, the final form of the Yu study. I may have  
17 reviewed other documents, but they have all been  
18 disclosed on my materials considered.

19          Q. Probably were other studies that were in  
20 your general causation report?

21          A. I probably reviewed some of those, but I  
22 don't recall the specific ones.

23          Q. And you said you met with counsel twice,  
24 correct?

25          A. I believe so.

1 Q. Who was present?

2 A. Ted and I believe Pat Wallace for at  
3 least one of the meetings and JT. I don't remember  
4 his last name. Is it --

5 MR. RUZICKA: Malone.

6 A. Malone, okay. It's on the Zoom, but I  
7 wasn't sure if that was the same JT or not.

8 Q. And do you recall how long each of those  
9 sessions was?

10 A. One to two hours.

11 Q. And were there any non-attorneys  
12 present?

13 A. Not that I'm -- not that I'm aware of.

14 Q. How much money would you estimate you  
15 have billed to date in this litigation?

16 A. I don't have a good sense. I don't know  
17 if there is an estimate. I can't remember if there  
18 was an estimate at my last deposition, but since  
19 that time I've probably performed another somewhere  
20 between 20 and 40 hours' worth of work. I don't  
21 recall the exact -- I don't know the exact number,  
22 though.

23 Q. And do you recall what your hourly rate  
24 is in this litigation?

25 A. I believe it's \$750 an hour.

1           Q.       So whatever \$750 an hour by 20 to 40  
2 hours is?

3           A.       Correct.

4           Q.       That's since your last deposition?

5           A.       Correct. I just have a flat rate for  
6 all my work.

7           Q.       And do you recall how much -- is it the  
8 same flat rate for you sitting here and me asking  
9 you questions?

10          A.       Yeah. I just charge a flat rate for my  
11 time.

12          Q.       Do you want to add to or change any of  
13 your answers to my questions?

14          A.       Not that -- not that I -- not at this  
15 moment.

16          Q.       And do you have any other opinions we  
17 haven't discussed yet?

18          A.       I don't believe so.

19                 MR. ORTIZ: Your counsel may have some  
20 questions for you. Depending on what he may  
21 ask, I might have some followup questions, but  
22 otherwise, I pass the witness.

23                 MR. RUZICKA: Thank you. I just have  
24 a couple questions, Dr. Hatten.  
25

EXAMINATION

BY MR. RUZICKA:

Q. If you could pull up Deposition Exhibit 39, which is your Criswell report.

A. Yes.

Q. And I believe, if you recall earlier, counsel for the DOJ was asking you questions about your appendix to that report and the cumulative level of chemicals that were calculated by Dr. Reynolds, correct?

A. Yes, I believe so.

Q. And do you recall there was some discrepancy between the cumulative levels of chemicals that Dr. Reynolds had in her report versus what was in your appendix in your Criswell report, Deposition Exhibit 39?

A. Yes, I believe so.

Q. And in looking at your appendix to Deposition Exhibit 39, you are relying on the cumulative microgram per liter month calculation in the far left-hand column to compare to the epidemiological studies performed by Dr. Bove. Is that correct?

MR. ORTIZ: Objection.

BY THE WITNESS:



1           A.     Yes, that's correct.

2       BY MR. RUZICKA:

3           Q.     And did you have a chance to review the  
4       levels that were identified in the far left column,  
5       the cumulative microgram per liter month as  
6       compared to what Dr. Reynolds had reported in her  
7       appendix for Mr. Criswell?

8           A.     Let me just take a look.

9                   Do you remember which appendix he is?

10          Q.     He is Appendix...

11                   MR. ORTIZ: I believe he's Appendix 2,  
12       yeah.

13       BY MR. RUZICKA.

14          Q.     ...2.

15          A.     Yes, I'm here.

16          Q.     Okay. And looking at Dr. Reynolds'  
17       cumulative microgram per liter month calculations  
18       in the far left-hand column of the Criswell  
19       appendix, are those numbers largely similar, if not  
20       identical, to the numbers that you have in your  
21       appendix of your Criswell report?

22          A.     Yeah, they are substantially similar.  
23       They are, I think, one number off for a few of the  
24       entries.

25          Q.     Okay. And that one number off, does

1 that change your opinions that you have in your  
2 Criswell report?

3 A. No.

4 Q. And then the only cumulative calculation  
5 that Dr. Reynolds provided that formed a basis  
6 beyond the microgram per liter month calculation is  
7 for PCE. Is that correct?

8 A. Correct, with respect to the Aschengrau  
9 study.

10 Q. And comparing your cumulative microgram  
11 per liter month calculation for PCE, both the  
12 TechFlow and the MT3-DMS models, with Dr. Reynolds'  
13 cumulative per liter month for PCE for both models,  
14 are those numbers just about identical, maybe one  
15 microgram per liter month off?

16 A. They are close, like -- you are talking  
17 about the cumulative one, correct?

18 Q. Just the cumulative microgram per liter  
19 month.

20 A. Yes. The TechFlow model that she listed  
21 is one microgram per liter month less and the  
22 MT3-DMS model is one microgram per liter month more  
23 than I have listed.

24 Q. And in your report for Mr. Criswell, you  
25 utilized that number from the cumulative microgram

1 per liter month column as your low end of the range  
2 for the cumulative PCE exposure. Is that correct?

3 MR. ORTIZ: Objection to form.

4 BY THE WITNESS:

5 A. I used the cumulative consumption  
6 estimates that are in column 3 and column 4 for the  
7 cumulative PCE.

8 BY MR. RUZICKA:

9 Q. I apologize. And the cumulative amounts  
10 that -- of PCE that Dr. Reynolds has in her report  
11 are higher than the cumulative amounts that you  
12 have in your appendix, is that correct?

13 MR. ORTIZ: Objection.

14 A. The last column is higher. The  
15 next-to-the-last column is substantially similar.  
16 It's within a thousand micrograms for the TechFlow  
17 model, which is the one I used in forming my  
18 opinion.

19 Q. Okay. So despite the discrepancies  
20 between your appendix in your Criswell report and  
21 Dr. Reynolds' report, your conclusions are still  
22 the same; is that correct?

23 MR. ORTIZ: Objection, foundation.

24 A. Yes. My conclusions would not change  
25 using her up- -- the updated version of the table

1       that she has listed versus the one that I included  
2       in my report.

3             Q.       Okay.   Thank you.

4             Are you aware of any public comments  
5       that the government or the ATSDR or anyone in the  
6       scientific community has made regarding the  
7       scientific credibility of the water modeling  
8       performed by the ATSDR?

9             MR. ORTIZ:   Objection.

10            A.       Everything I've read has recognized the  
11       water modeling as the most appropriate modeling of  
12       exposures at Camp Lejeune.   I think it has been  
13       recognized as an example of good -- good practice  
14       or good modeling.   As I said before, I'm not a  
15       water modeling expert, so I don't have a way to  
16       independently evaluate that.

17            Q.       And you were asked some questions about  
18       cigarette smoking earlier.   Do you recall that  
19       testimony?

20            A.       Yes.

21            Q.       Is there any reason to believe or is  
22       there any evidence that the Marines or civilians at  
23       Camp Lejeune were disproportionately higher  
24       percentage of smokers in the Marines or civilians  
25       at Camp Pendleton?

1 MR. ORTIZ: Objection.

2 A. Not that I'm aware of.

3 Q. And the risk from the VOCs is  
4 demonstrated in spite of the background rates on  
5 smoking. Is that correct?

6 MR. ORTIZ: Objection.

7 A. Yes. That's the -- a major reason Camp  
8 Pendleton was chosen as a comparison site, is that  
9 it's presumably similar rates of background  
10 exposures aside from the water contamination.

11 MR. RUZICKA: I have no other  
12 questions for you, Dr. Hatten. Thank you.

13 MR. ORTIZ: I don't have any further  
14 questions.

15 THE VIDEOGRAPHER: This will conclude  
16 the deposition of Benjamin Hatten, M.D. the  
17 time is 3:14 p.m. We are off the record.

18 THE REPORTER: Did you want to put  
19 anything on the record about signature?

20 MR. RUZICKA: We will read and sign,  
21 yes.

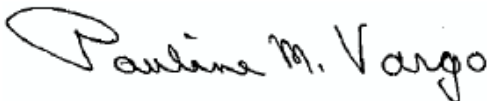
22 (At 3:14 p.m., the deposition was  
23 concluded.)  
24  
25

1           - CERTIFICATE OF CERTIFIED SHORTHAND REPORTER -  
2           I, PAULINE VARGO, Certified Shorthand  
3           Reporter, Registered Professional Reporter and  
4           Certified Realtime Reporter, do hereby certify that  
5           prior to the commencement of the examination,  
6           BENJAMIN HATTEN, M.D., MPH, was duly sworn by me to  
7           testify to the truth, the whole truth and nothing  
8           but the truth concerning the matters herein.

9           I DO FURTHER CERTIFY that the foregoing  
10          deposition transcript is a verbatim transcript of  
11          the testimony as taken stenographically by me at  
12          the time, place, and on the date hereinbefore set  
13          forth, to the best of my ability.

14          I DO FURTHER CERTIFY that a review of  
15          the transcript was requested.

16          I DO FURTHER CERTIFY that I am neither a  
17          relative nor employee nor attorney nor counsel of  
18          any of the parties to this action, and that I am  
19          neither a relative nor employee of such attorney or  
20          financially interested

21          :   
22

23          \_\_\_\_\_  
24          COURT REPORTER  
25          Certified Shorthand Reporter - IL No. 084-001573  
26          Registered Professional Reporter  
27          Certified Realtime Reporter  
28          Dated: July 14, 2025

INSTRUCTIONS TO WITNESS

Please read your deposition over carefully and make any necessary corrections. You should state the reason in the appropriate space on the errata sheet for any corrections that are made.

After doing so, please sign the errata sheet and date it. It will be attached to your deposition.

It is imperative that you return the original errata sheet to the deposing attorney within thirty (30) days of receipt of the deposition transcript by you. If you fail to do so, the deposition transcript may be deemed to be accurate and may be used in court.

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E R R A T A

CASE NAME: IN RE CAMP LEJEUNE WATER LITIGATION  
DEPOSITION OF: BENJAMIN WALTER HATTEN, M.D., MPH.  
DATE TAKEN: July 7, 2025

PAGE LINE CHANGE

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1 CASE NAME: IN RE CAMP LEJEUNE WATER LITIGATION

2 No. 7:23-cv-00897

3 I hereby certify that I have read the  
4 foregoing transcript of my deposition, given  
5 on July 7, 2025, at the place aforesaid, and I  
6 do again subscribe and make oath that the same is  
7 a true, correct, and complete transcript of my  
8 deposition so given as aforesaid, as it now appears.

9  
10 (Signed)

11 \_\_\_\_\_  
12 BENJAMIN WALTER HATTEN, M.D., MPH DATE

13  
14 SUBSCRIBED AND SWORN TO  
15 before me this day  
16 of , A.D. 20\_\_\_\_.

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18 \_\_\_\_\_  
19 Notary Public

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<b>0.05</b> 40:10	<b>0.92</b> 118:2 168:1	<b>1.0</b> 87:4,21 119:14,24 121:7 167:12	<b>1.46</b> 86:25
<b>0.06</b> 151:16,19	<b>0.93</b> 116:21 166:20	<b>1.0.</b> 87:6	<b>1.46.</b> 87:1
<b>0.15</b> 118:3 119:3 168:1,11	<b>0.94</b> 129:13 163:18	<b>1.00</b> 116:18,19	<b>1.47</b> 137:13
<b>0.17</b> 105:5,20 164:19	<b>0.95</b> 137:17	<b>1.02</b> 150:13	<b>1.52</b> 163:19
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<b>0.25</b> 110:6,21 166:2	<b>01-000942781</b> 5:21	<b>1.1</b> 38:14 92:25 127:23 128:3 128:18 135:2 135:11,12	<b>1.68</b> 116:17 167:12
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<b>0.43</b> 116:22 166:20	<b>01-000942788</b> 5:21	<b>1.12</b> 137:13	<b>1.75</b> 88:11
<b>0.61</b> 118:21	<b>05</b> 155:22	<b>1.16</b> 38:15 135:3,17 136:13	<b>1.8</b> 38:14 135:2 135:12,13
<b>0.63</b> 151:15 176:18	<b>084-001573</b> 221:15	<b>1.18</b> 86:24 88:10 92:14	<b>10</b> 5:3 6:5 86:10,20 150:9 150:10 154:2 163:23
<b>0.64</b> 100:14 104:22	<b>095</b> 86:25	<b>1.2</b> 163:18	<b>10.98</b> 118:21
<b>0.71</b> 137:18	<b>1</b>	<b>1.20</b> 105:4,17 150:14 164:19	<b>100</b> 1:19 74:5 74:16 198:6,7 198:23
<b>0.73</b> 129:14	<b>1</b> 5:19 33:5,5 61:18,18 68:20 85:17 88:7 91:8 100:12 103:13 104:17 120:2 154:2,4 154:7,8 161:16 164:6 174:22 188:21 189:2	<b>1.22</b> 104:14,16 129:14	<b>101</b> 6:6
<b>0.76</b> 116:15 165:12	<b>1,2</b> 67:13	<b>1.24</b> 109:22 110:5,20 166:1	<b>103</b> 5:23
<b>0.77</b> 120:14 136:14		<b>1.25</b> 137:18	<b>106</b> 7:7
<b>0.8</b> 165:16		<b>1.28</b> 116:14	<b>10:32</b> 75:22
<b>0.80</b> 88:11		<b>1.30</b> 165:11	<b>10:44</b> 76:1
<b>0.86</b> 137:13		<b>1.32</b> 114:20	<b>11</b> 5:5 86:18 93:19 99:17,22 99:25 107:14 107:23
<b>0.87</b> 150:14		<b>1.33</b> 165:15	<b>11.3</b> 163:8,10
<b>0.88</b> 101:11 104:23 105:21 111:4 119:10 121:3 151:19			<b>11.46</b> 176:18
			<b>1100</b> 2:3
			<b>111</b> 2:17 7:14

<b>11:43</b> 121:13 <b>12</b> 6:17 7:4 16:18 87:24 95:22,24 107:15 141:19 <b>12/1/1965</b> 144:16 <b>12/1/65</b> 68:16 <b>120,572</b> 113:16 <b>120.6</b> 113:9 <b>124</b> 7:17 <b>129.5.</b> 128:3 <b>129.50</b> 127:21 <b>12:44</b> 121:17 <b>13</b> 5:8 98:24 115:4,16 141:19 <b>13.6</b> 129:9 <b>13.78</b> 120:22 168:22 <b>130</b> 6:8 <b>134</b> 6:11 <b>14</b> 5:9,11,12,14 221:17 <b>141</b> 6:14 <b>146</b> 102:20 <b>147</b> 103:18 104:3 <b>14th</b> 19:13 <b>15</b> 7:7 104:2 106:23,25 107:14 <b>15.04</b> 129:20	<b>16</b> 7:11 86:5,7 87:25 93:11 <b>168</b> 130:15,24 131:16,24 <b>168,032</b> 113:17 <b>168.0</b> 113:9 <b>17</b> 5:15 57:25 58:1,15 79:7 102:7 203:17 <b>17.37</b> 104:22 <b>17.37.</b> 100:14 <b>1740</b> 125:10 127:19 <b>1745</b> 127:2 <b>1789</b> 221:14 <b>179</b> 6:16 <b>17th</b> 11:16 12:6 <b>18</b> 192:5 <b>19</b> 5:18 6:13 102:24 <b>1953</b> 211:9 <b>1958</b> 180:19 181:7 184:1,2 185:13 187:1 <b>1960s</b> 145:4,7 148:19 149:5 <b>1963</b> 144:2,8 <b>1964</b> 130:17 131:1 132:1 185:13,20 <b>1965</b> 76:20,24 144:3,9,18,19 185:14,21	<b>1969</b> 131:1 <b>1970s</b> 163:1 <b>1972</b> 85:18 88:2 188:8,11 <b>1973</b> 185:14 187:1 <b>1975</b> 76:10 85:10 86:15 88:2 149:1 163:12 187:2 <b>1976</b> 159:19 162:15 <b>1977</b> 76:11 159:19,20 160:3 <b>1979</b> 130:17 132:1 159:20 159:20,25 160:3 <b>1980</b> 32:14,14 77:19 131:8 159:21,25 163:4 <b>1980s</b> 32:12 <b>1983</b> 174:10 <b>1984</b> 174:11 <b>1985</b> 85:10,18 86:15 149:1 160:13 163:13 187:2 188:8,11 <b>1987</b> 159:21 160:6,17 163:11 211:9	<b>1990</b> 159:21 <b>1993</b> 37:8,20 111:14,20,23 112:9,12 113:2 113:8 114:14 114:18 115:6 166:7,10 176:5 176:9 <b>1997</b> 76:10 <b>1:03</b> 136:1 <b>1:05</b> 136:4 <b>1:36</b> 158:15 <b>1:42</b> 158:19 <b>1st</b> 144:18
			<b>2</b>
			<b>2</b> 6:4 48:3 60:4 79:8 81:11 88:19 91:8 96:14 98:1 99:20 100:11 104:25 110:1,9 117:21 118:18 120:10 139:9 148:16 151:4 151:14 152:7 153:4 163:6 165:23 167:23 176:16 216:11 216:14 <b>2,190</b> 197:7 <b>2.01</b> 116:22 166:20

<b>2.01.</b> 104:17	175:23 176:21	15:12 16:18	<b>3</b>
<b>2.15</b> 116:15	177:14 210:22	19:13 20:6	<b>3</b> 6:16 60:15
<b>2.23</b> 165:12	<b>2014a</b> 95:24	221:17 223:2	61:17 94:19
<b>2.24</b> 101:11	151:5,9 164:14	224:5	100:6 103:18
104:23 105:22	<b>2017</b> 37:23	<b>204</b> 6:18	120:9 125:9,11
111:4 119:10	38:16,25 93:4	<b>21</b> 85:17 88:7	127:18 139:8
121:3 151:20	122:5 124:18	154:7,8 174:22	153:5 181:4
165:16	125:6 126:22	188:21 189:3	188:4 218:6
<b>2.24.</b> 103:6	127:19 128:13	<b>21.18</b> 120:14	<b>3.33</b> 100:5,13
<b>2.26</b> 120:21	129:6,18	<b>21.84.</b> 114:21	105:18
168:21	<b>2018</b> 37:17	<b>214</b> 130:21	<b>30</b> 195:19
<b>2.59</b> 118:20	106:18,25	131:10	222:8
<b>2.69</b> 176:17	115:20,23	<b>215</b> 4:6	<b>300</b> 73:19 74:4
<b>2.82</b> 116:19	152:12,15	<b>217</b> 132:24	74:16 75:1
167:13	164:24 165:2	<b>218</b> 133:21	<b>310</b> 3:4
<b>20</b> 49:20 91:9	166:14,17	<b>24</b> 147:22	<b>312</b> 2:18
201:15 213:20	175:17	148:8 182:4	<b>31st</b> 160:6
214:1 224:16	<b>202</b> 3:5	<b>25</b> 20:6	<b>32</b> 203:13
<b>2006</b> 38:5	<b>2021</b> 104:6	<b>26</b> 1:19 7:14	<b>32.8</b> 128:5
130:10,12	205:14	58:2 111:18,19	<b>33</b> 7:17 124:16
133:11,16	<b>2022</b> 102:8	<b>27</b> 11:10	124:17
134:3	<b>2024</b> 37:12	<b>27.1</b> 111:24	<b>36</b> 10:13
<b>2011</b> 40:21	40:22 42:4,7	<b>27601</b> 3:5	<b>37</b> 5:3 10:14,15
<b>2014</b> 7:11	86:1,7 93:11	<b>27603</b> 2:10	10:19 12:13
37:14 95:18	93:20 148:25	<b>28406-7068</b>	<b>38</b> 5:5 11:1,2,7
96:14,21 97:16	150:7 163:15	2:14	<b>39</b> 5:8 13:22,25
98:1,8,24	163:23 174:17	<b>289</b> 112:12	14:4,17 15:2
99:17,25	176:12 187:3	114:17	16:24 21:15
109:16,19	210:22	<b>2930</b> 2:3	24:11 38:9
117:19,22	<b>2024a</b> 89:9	<b>2:39</b> 200:19	39:24 60:3
118:15 152:4	149:25	<b>2:49</b> 200:23	76:4 121:24
153:13 165:19	<b>2025</b> 1:20 4:2		215:4,16,19
167:20 168:8	8:5 10:21		
168:18 175:9	11:10,16 12:6		

<b>3:02</b> 212:1	<b>451-7756</b> 3:5	<b>54.7</b> 189:1	<b>74</b> 104:17
<b>3:04</b> 212:4	<b>46</b> 5:20 66:8,9	<b>5th</b> 180:19	<b>741-5220</b> 2:18
<b>3:14</b> 220:17,22	66:13,18	<b>6</b>	<b>75</b> 137:9
<b>4</b>	<b>47</b> 5:22 78:10	<b>6</b> 68:10 87:25	<b>750</b> 213:25
<b>4</b> 5:17 24:12	78:12 96:7	91:9 132:24,25	214:1
38:8 39:24	<b>48</b> 6:4 96:5,8,9	133:2,3 154:2	<b>76</b> 115:22,24,25
40:19 61:18	96:13 110:10	154:4	166:16 182:4
112:12 113:2	<b>49</b> 6:6 96:3	<b>6.04</b> 114:15,20	<b>78</b> 5:22 165:1
114:17 122:1	101:14,15	<b>6.21</b> 110:6,21	<b>78701</b> 2:18
139:25 159:1	203:10,12	166:2	<b>794-4829</b> 2:14
218:6	<b>5</b>	<b>6.93</b> 151:16,19	<b>7:23</b> 1:6 224:2
<b>4,600</b> 95:12	<b>5</b> 35:8 39:24	<b>60</b> 195:20	<b>8</b>
<b>4.04</b> 120:13	40:19 86:11,12	<b>600-5016</b> 2:10	<b>8</b> 5:8,11,13
<b>40</b> 5:9 14:6,10	91:8 118:17	<b>64105</b> 2:4	137:25 165:22
14:17 68:11	150:11	<b>66</b> 5:20	<b>8.10</b> 110:25
126:14,16,17	<b>5.52</b> 119:3	<b>69</b> 141:16	<b>8.61</b> 105:5,21
126:19 194:22	168:11	<b>7</b>	<b>8.65</b> 164:19
213:20 214:1	<b>5.55</b> 118:3	<b>7</b> 1:20 4:2 5:10	<b>816</b> 2:4
<b>41</b> 5:11 14:6,11	168:1	5:14 6:10 8:4	<b>86</b> 7:11
14:15,18	<b>5/12/25</b> 6:14	15:12 86:20	<b>87</b> 129:8
<b>42</b> 5:12 14:6,11	<b>5/17/22</b> 6:7	116:7 117:22	<b>87.55</b> 129:9,13
14:18,20	<b>50</b> 6:8 130:4,9	135:5,6,7	<b>88</b> 103:6
<b>421-1600</b> 2:4	130:10 194:22	148:9 152:6	<b>8:58</b> 1:21 8:5
<b>43</b> 5:14 14:6,12	195:10	154:2 167:22	<b>9</b>
14:19 15:3	<b>51</b> 6:11 134:14	176:15 223:2	<b>9</b> 4:5 109:25
16:24 21:15	134:19 135:6	224:5	110:3,7,8,9
<b>44</b> 5:15 17:2,7	<b>52</b> 6:14 141:8	<b>70</b> 159:23	165:24
19:12 20:9,12	141:13 179:15	<b>7068</b> 2:13	<b>9.3</b> 77:12
21:12 139:6	203:8,9	<b>70s</b> 32:16	<b>900</b> 2:9,17
<b>44.1</b> 111:24	<b>53</b> 6:16 179:15	159:23	<b>90th</b> 111:23
<b>45</b> 5:18 19:20	179:16,20	<b>730</b> 198:4,5,6,7	<b>910</b> 2:14
19:25,25 66:7	<b>54</b> 6:18 204:22	198:17,23	<b>919</b> 2:10
66:10 134:11	204:24		

<b>95</b> 7:4 <b>96</b> 6:4 <b>9:36</b> 39:16 <b>9:41</b> 39:21 <b>9th</b> 10:21  <b>a</b>  <b>a.d.</b> 224:16 <b>a.m.</b> 1:21 8:5 39:21 76:1 <b>a181</b> 67:2 <b>a9</b> 5:20 <b>abbreviated</b> 59:12 <b>ability</b> 221:8 <b>able</b> 112:14 <b>above</b> 127:21 128:3,21 129:8 129:13,20 134:4 135:13 197:16 <b>absorb</b> 28:25 29:15 30:8 <b>absorbed</b> 28:2 28:22 29:1,11 29:19 30:2,4,5 30:10,19 <b>absorption</b> 28:4,11,17 <b>account</b> 30:14 36:15 46:4 52:17 72:22 75:6 112:19,24 124:3 162:18	211:3 <b>accounted</b> 162:20 <b>accounting</b> 82:15 148:10 <b>accumulative</b> 200:5 <b>accuracy</b> 54:9 124:11 <b>accurate</b> 34:16 35:5 36:24 89:19 180:11 222:10 <b>accurately</b> 53:1 53:20 66:2 67:12 73:8 132:14 <b>act</b> 160:9 <b>action</b> 221:11 221:13 <b>actively</b> 65:14 <b>actual</b> 38:22 67:21 83:13 98:17 99:7 104:1 115:23 145:3 147:16 185:25 <b>actually</b> 11:11 13:24 24:20 78:21 85:12 94:14 97:23 <b>add</b> 214:12 <b>added</b> 96:17	<b>adding</b> 81:6 <b>addition</b> 19:18 29:12 40:7 123:22 139:20 <b>additional</b> 6:4 11:21 28:14 96:14 98:1,6 99:20 100:11 104:25 107:18 109:25 110:9 117:21 118:17 118:18 120:9 151:3,14 152:6 153:4 156:2,20 165:23 167:23 171:11 176:15 <b>additionally</b> 24:13 <b>address</b> 95:6 <b>adjusted</b> 86:24 88:9 104:13 163:20,24 <b>adjustment</b> 138:19 <b>admitted</b> 133:16 <b>adult</b> 197:11 <b>affect</b> 28:16 30:8 75:2 <b>affected</b> 29:15 <b>affects</b> 29:13 <b>aforsaid</b> 224:5 224:8	<b>age</b> 91:12 <b>agency</b> 31:1 <b>agent</b> 29:20 73:1 125:15 135:8 <b>ages</b> 135:17 136:12 <b>aggregate</b> 127:9 <b>ago</b> 16:11 151:24 167:5 <b>agree</b> 12:13 20:1 25:9,20 27:2 32:10 33:4 34:8,11 34:22 39:4 40:20 42:19 44:5 48:11 53:4,12,22 59:3 72:1,19 73:7,17 75:4 76:9 77:13 78:23 87:3 90:10 92:2,14 93:10 97:15 98:7,15,20 99:15 100:24 102:1 104:21 107:24 109:3 111:3 112:18 119:9 121:2 125:6,18,25 126:12,22 127:15,19
---	---	--	--

132:4,25 133:10 135:19 136:16,23 137:20 138:8 142:5 144:24 145:3 148:18 152:7,22 157:8 158:1 162:8 163:1 172:9 174:9 179:25 182:25 183:20 185:25 190:23 192:12,16,18 193:21 194:8 199:5 202:9 205:18,22 207:5 <b>ahead</b> 53:16 97:1 158:24 167:2 196:21 <b>air</b> 33:17 38:11 38:15 132:5 191:6 192:21 193:1 <b>al</b> 6:9,11 7:4,11 7:15,17 <b>albeit</b> 103:9 <b>alcohol</b> 29:10 29:14,15 73:21 74:6,15,20 75:1 <b>alert</b> 65:5,11 <b>alleged</b> 206:17 207:6	<b>allow</b> 132:5 <b>alluded</b> 144:16 <b>aloud</b> 91:4 <b>altered</b> 179:11 <b>alternate</b> 114:12 <b>ambient</b> 171:8 172:11 191:5 192:21,25 <b>american</b> 6:18 205:5,13 209:4 209:10 <b>amount</b> 27:24 28:16,24 29:1 29:14,14 30:7 30:19,19 36:11 74:13 91:25 141:4,22 142:8 142:14,17,24 143:2 <b>amounts</b> 60:25 146:1 199:22 218:9,11 <b>analyses</b> 54:5 93:10 94:6 108:4 162:23 200:12 <b>analysis</b> 68:25 69:3,4 77:21 77:25 81:21,25 82:6,23 83:4 90:22 145:22 146:18 147:10 147:14,18	148:3,4 162:4 162:7,9 167:5 167:16 176:22 177:2,2,10 179:3 196:11 196:12 <b>analyze</b> 146:20 <b>analyzed</b> 130:12 200:10 <b>answer</b> 9:14,21 13:7 21:17,20 29:23 31:13 34:16 42:24 53:16,17 57:22 67:10 90:2 103:3,11 104:7 104:10,15,20 109:8 119:19 141:25 184:9 197:3 200:1 203:21 204:5 <b>answered</b> 121:10 198:19 <b>answering</b> 9:24 10:4 <b>answers</b> 62:17 214:13 <b>anticipated</b> 27:8 59:18 63:23 <b>anwar</b> 3:7 8:18 204:23 <b>anybody</b> 13:5	<b>apologies</b> 13:24 <b>apologize</b> 79:6 179:24 181:16 218:9 <b>appear</b> 15:8 79:15,25 162:9 181:10 183:1 183:21,23 184:22 205:12 <b>appears</b> 10:22 66:20 78:17 79:2 95:25 101:24 102:9 102:12 132:9 183:24 184:3 224:8 <b>appendices</b> 26:20 55:2 78:21,24 83:5 181:11 <b>appendix</b> 5:20 6:16 66:21 77:2,20 79:8 144:13 145:8 146:21,24 160:5 161:16 161:21 162:10 177:9 179:10 179:21 180:2,4 180:5,9,15 181:1,3,4 182:13,22,23 183:8,9 184:1 184:13,17,20
---	--	---	---

184:24 185:4 215:8,15,18 216:7,9,10,11 216:19,21 218:12,20 <b>applicable</b> 97:7 188:14 208:3 209:2 <b>applied</b> 63:9 <b>apply</b> 100:20 206:22,24 207:2 209:6 <b>appointment</b> 51:12 <b>apportion</b> 182:3 184:18 <b>apportioned</b> 84:6 97:24 185:7,11 <b>apportioning</b> 182:18 183:16 <b>apportionment</b> 84:13 183:17 185:1 <b>appreciable</b> 172:21 <b>approach</b> 67:15 <b>appropriate</b> 39:7,9 101:8 149:10 153:25 187:12 206:8 207:18,23 208:1 219:11	222:4 <b>approved</b> 205:14 <b>approximately</b> 91:9 194:15,22 196:16,24 197:7,9 198:4 198:5,16 <b>april</b> 11:16,21 12:6 159:19 <b>area</b> 67:14 138:25 191:3 199:1 <b>areas</b> 67:18 <b>arithmetic</b> 35:5 54:24 <b>arrive</b> 56:10 <b>arrived</b> 47:24 <b>article</b> 7:11,15 7:17 <b>articulated</b> 190:2,13 <b>asbestos</b> 71:4 <b>aschengrau</b> 7:15 37:8,20 111:14,20,23 112:9,12 113:2 113:7 114:13 114:18 115:6 123:23 145:25 166:7,10 176:5 176:8 178:15 217:8	<b>aside</b> 41:6 115:8 130:3 139:3 182:24 183:19 220:10 <b>asked</b> 58:9,19 174:24 195:5 206:14 219:17 <b>asking</b> 35:1,2 58:17 59:25 63:12 70:18,18 70:21 93:15 114:5 141:21 169:14 214:8 215:7 <b>asks</b> 12:13 21:17 <b>assess</b> 145:18 206:15 <b>assessing</b> 123:16 <b>assessment</b> 21:25 60:10 63:18 64:4,5 93:3 128:13,20 134:2 <b>assessments</b> 64:1 <b>assignment</b> 21:14 <b>assistant</b> 12:2,3 <b>associa</b> 157:14 <b>associated</b> 155:12 170:1 175:4	<b>association</b> 37:2 38:12 41:15,20 42:13 43:15,18,24,25 45:5 85:14,19 92:15,18,25 105:8 111:12 127:5,25 128:10,19 130:2 133:17 133:24 150:3 154:21 155:5 155:19,25 157:15 164:2 166:24 168:5 168:14 170:2 170:11 172:1,5 174:18 175:6 178:17 188:13 209:22 <b>associations</b> 41:14 44:7 192:5,11 <b>assume</b> 9:18 48:6 54:3 76:23 79:3 125:4 143:6 144:18 195:24 <b>assumed</b> 52:24 67:19 77:6,11 94:4 108:16 <b>assumption</b> 48:13 52:24 54:3,9 60:12
---	---	--	---



109:13 120:2 186:12,18 <b>assumptions</b> 32:5 48:1 57:14,15,18,20 58:3,8,12,14 59:1,11,14,24 76:25 108:18 113:17,18,19 113:21,25 114:2,7 <b>atsdr</b> 7:8 30:25 31:23 32:8,17 32:17,25 37:17 48:6 50:24 59:10,23 60:4 60:9,12 65:25 67:7,15 69:7 69:14 92:24 93:3 96:23 97:6 106:2,18 106:25 107:17 108:23 113:17 113:19,25 114:8 115:20 115:22 128:1,2 148:18 152:12 152:15 164:24 165:2 166:14 166:16 175:16 193:7 219:5,8 <b>atsdr's</b> 30:21 34:9,11 35:16 52:16 68:2	128:13,20 129:3 <b>attached</b> 10:16 11:3 14:1,8 17:3 19:21 66:14 78:13 96:10 101:16 130:5 134:15 141:9 161:11 179:17 204:25 222:6 <b>attachment</b> 12:17,18 <b>attempt</b> 65:15 138:18 195:15 196:6 199:9 201:5 <b>attempted</b> 63:13 68:5 <b>attempting</b> 56:5 196:9 <b>attention</b> 98:23 105:1 107:13 141:18 <b>attorney</b> 47:22 139:16 221:11 221:12 222:8 <b>attorneys</b> 13:1 13:9 57:19,24 80:19,19 212:9 213:11 <b>attributing</b> 112:24	<b>august</b> 162:14 180:19 183:25 185:13 <b>austin</b> 2:18 <b>author</b> 184:4 211:1 <b>author's</b> 94:10 94:11 103:3 <b>authored</b> 143:13 <b>authors</b> 87:16 99:12,13 104:15 123:16 127:15 138:14 191:10 <b>available</b> 17:18 30:7 32:11 36:7 40:13 52:25 60:23 67:11 75:11,13 75:16 84:3,13 84:15 113:4 138:24 144:22 146:5 150:24 156:9 157:19 191:20 206:8 <b>avenue</b> 2:17 3:4 <b>average</b> 67:23 <b>avoid</b> 86:6 <b>aware</b> 18:19 20:9,10 42:7 52:16 62:11 65:25 69:7,14 75:8 76:13,19	77:17 80:3,21 95:5 96:21 97:4 106:2 108:15,20 109:2 124:10 137:7 145:6 147:8 156:16 156:25 157:2 160:12 161:25 162:2,13,16 171:15,22 173:24 179:7,9 179:12,23 185:19 186:3 186:10 193:10 195:1 197:10 198:24 209:7,8 213:13 219:4 220:2 <b>b</b> <b>b</b> 5:1 6:1 7:1 <b>back</b> 12:12 13:24 20:12 39:21 40:1,16 40:19 51:2 76:1,3 81:10 100:3 104:25 107:23 114:13 121:17 127:18 136:4 139:4,23 150:16 151:23 158:19 164:12 177:13 200:23
--	--	--	---

201:6 203:4 212:4 <b>background</b> 171:8 172:6,10 172:10,23 173:4 192:25 199:17,23 220:4,9 <b>bailey</b> 57:8 <b>ban</b> 40:22 140:24 <b>bananas</b> 193:18 <b>banged</b> 101:19 <b>barriers</b> 28:15 <b>base</b> 7:6,10,13 53:1,5 69:2 76:22 77:12 84:22 85:7 88:19 93:25 123:19 128:2 140:6 145:21 148:6,17,24 149:10,18 153:17,23 162:14,19 163:8,17 169:2 174:14,22 175:1 177:21 185:17,20 186:9,25 187:5 187:8 210:1,1 <b>based</b> 7:18 22:4 35:5 36:14	44:11 50:6,8 59:10,12,23 60:21 62:1 90:21 91:24 105:14 108:10 111:1 115:1 118:5,23 119:6 120:17,24 130:15 140:17 144:21 149:19 150:22,23 151:16 155:16 156:4 157:11 157:18 166:2 167:3 168:2,6 168:22 169:2 170:24 176:18 179:7 183:23 186:11 189:13 190:1 191:2,5 197:19 209:21 209:24 211:18 <b>bases</b> 15:19 <b>bash</b> 2:19 <b>basing</b> 157:9 173:11 186:24 <b>basis</b> 47:13 67:9 127:10 217:5 <b>bates</b> 66:23 <b>bdjlaw.net</b> 2:7 <b>beer</b> 73:17 74:6 74:6,13,14	<b>beginning</b> 57:18 188:4 <b>begins</b> 93:24 138:2 180:19 <b>behalf</b> 2:2 3:3 <b>believe</b> 10:24 15:13,21 17:13 17:24 18:7 20:15 32:4,20 33:7 39:2 42:14 57:17 58:1 59:13,15 75:10 77:7,7 78:4,5 80:10 80:12 93:5 100:1,2 106:8 113:14 116:4 124:19,21 125:20,20 132:20,22 135:21 136:10 139:5,15 147:21 148:15 160:18 162:3 169:17 175:21 176:2 177:7,18 179:6,13 181:4 186:7 187:14 188:23 189:12 189:19,24 190:12,14 192:23 193:6 202:7 205:9,25 210:16,17	211:16 212:10 212:25 213:2 213:25 214:18 215:6,11,17 216:11 219:21 <b>benjamin</b> 1:13 4:4 5:4,7 6:15 8:12 9:1 11:9 102:3 220:16 221:4 223:2 224:12 <b>benzene</b> 19:7 25:12 27:13 38:15 40:7 41:19 52:5,18 67:13 71:20,22 84:23 120:3,6 120:7,10 121:25 129:17 129:19 135:9 135:10 136:13 140:7,13 142:24 143:5 153:1,6,12 154:24 155:10 156:8 157:5,12 157:14 159:5,7 159:8,9 160:20 160:21 168:17 169:3,7 177:13 177:22 189:11 189:24 191:5 191:16 193:11 193:17,22,23
--	--	--	--

194:1 195:16 195:25 196:3,4 <b>bern</b> 3:4 <b>best</b> 22:1 56:11 60:23 69:20 78:1 221:8 <b>bethune</b> 2:3 <b>beyond</b> 124:3 210:25 211:15 217:6 <b>bias</b> 108:1,4 112:20,22 <b>biasing</b> 108:6 <b>billed</b> 213:15 <b>billion</b> 33:6,18 40:10 126:1,6 126:10,12,14 126:19 155:23 <b>bioavailability</b> 30:6 <b>biostatistics</b> 48:21 <b>bird</b> 156:16,25 <b>bird's</b> 156:23 <b>bit</b> 26:6 27:2 58:19 73:12,13 143:24 199:15 <b>bladder</b> 6:12 6:17 7:18 16:3 16:13 19:9 22:3 24:3,16 25:6,17,19,22 25:23 26:5 36:22 37:3	40:9 41:14,15 42:13,17,21 43:8,15,18,25 44:8 45:5 54:20 64:23 78:22,24 85:9 85:19 86:23 88:10 89:22 90:19 91:13,14 91:16 95:4 96:18 99:16,21 99:24 103:1,9 105:8 112:10 112:15 114:19 115:4,9,15 116:5,11 118:5 118:23 119:6 120:17,24 122:17 127:5 127:20 129:8 129:19 130:12 133:7,12,17,25 134:5,10 140:14 141:4 141:23 142:8 142:14,18,25 143:5,17,19,20 150:3,13 151:14,17 152:8 153:6,7 154:22,25 155:5,7,12 156:7 157:15 157:19 159:6	165:10 166:3 166:24 168:2,5 168:14,22 169:12 170:2,3 170:11 171:24 174:19 175:2,7 188:13 194:9 194:11,14,16 197:21 199:10 200:6 209:22 <b>blood</b> 29:13 <b>blown</b> 180:12 <b>board</b> 205:4 <b>body</b> 29:3,12 29:16 30:8 44:2 62:11 70:1,10,14 71:2,7 72:3,8 72:20,23 73:4 73:7,22 75:6,9 <b>bottom</b> 66:24 68:14,19 77:10 80:25 88:5 99:2 133:8 144:15 149:12 181:22 182:7,8 182:14,24 183:20 185:2,3 <b>boulevard</b> 30:22 31:5 67:14,18 <b>boundary</b> 114:1,9	<b>bove</b> 7:4,11 26:1 37:11,14 42:4,7 86:1,7 89:9 93:11,19 94:20,22 95:18 95:24 96:14,21 97:16 98:1,8 98:24 99:16,25 109:16,19 117:19,22 118:15 123:17 146:3 148:24 150:6 151:1,9 152:3 153:13 163:15,23 164:14 165:19 167:20 168:8 168:18 174:17 175:9,23 176:12,21 177:14 187:2,4 187:7 210:22 210:22 212:14 212:15 215:22 <b>box</b> 2:13 <b>break</b> 9:20 75:20 120:4 121:21 158:13 200:16 211:22 211:22 <b>brief</b> 183:23 <b>briefly</b> 9:11 <b>bring</b> 10:7
--	---	--	---

<b>bryson</b> 2:8	113:8,23 152:8	<b>called</b> 9:2 60:15	25:6,18,19,22
<b>built</b> 34:20	153:7,12,13	<b>camp</b> 1:5 7:6	25:23 26:5
83:15	186:11 193:25	7:10,13 8:8	36:23 37:3,12
<b>bunch</b> 152:19	215:9	22:2 25:5,14	40:9 41:14,16
<b>butcher</b> 3:10	<b>calculating</b>	25:18,23 27:14	42:4,13,17,22
8:3	82:1,3 163:10	31:6,9,25 32:1	43:8,15,19,25
<b>butler</b> 2:15	<b>calculation</b>	37:5,6 48:9	44:8 45:5
<b>c</b>	36:7 59:6 73:5	53:10 69:21	54:20 64:23
<b>c</b> 2:1 3:1 38:25	75:18 83:14	76:10,19 77:15	78:22,24 85:9
<b>c6h6</b> 135:9	94:21 113:24	85:10,17 86:14	85:20 86:1,7
<b>cagiano</b> 5:11	148:13 162:23	86:14 88:1,1	86:13,23 87:25
5:16 14:18	169:24 184:10	89:21,23 90:17	88:10 89:23
15:5 158:22	215:20 217:4,6	94:3 99:16,25	90:19 91:13,14
159:12,15	217:11	107:18 108:5,5	91:16 95:5
160:5 161:16	<b>calculations</b>	108:16 116:8,9	96:18 99:16,21
162:14,25	30:14,18 32:2	124:13,14	99:24 103:1,9
163:7,8 164:7	33:25 34:3,9	144:1 148:19	105:8 107:19
164:12,13,22	34:13,19,21,22	149:8 150:12	112:10,15,23
165:18 166:5	36:2,9 42:1	154:14,20	114:19 115:5,9
166:13 167:19	44:19 54:4,12	155:17,18	115:15 116:6
168:7,17,25	54:19 55:1,5,8	157:5 160:9	116:12 118:5
169:10 172:3	55:11,16 56:4	165:7,7 185:12	118:23 119:6
173:3 174:2	56:6,9,10 72:6	186:2 196:5	120:17,24
<b>cagiano's</b> 14:15	75:5 80:9	199:12,14	127:5,10,20
160:16 167:8	82:22 84:10,12	200:7,8 209:25	129:8,19
173:22	84:14,16 147:7	210:1,1 219:12	130:12 133:7
<b>calculate</b> 94:14	147:16 158:7	219:23,25	133:12,18,25
112:14 195:14	160:17 161:24	220:7 223:1	134:5,10 141:4
195:15,23	179:11 186:16	224:1	141:23,23
199:9,9	216:17	<b>cancer</b> 6:9,13	142:8,14,18,25
<b>calculated</b>	<b>calculator</b>	6:17 7:11,15	143:5,17,19,21
27:12 54:23	147:24	7:18 16:3,13	150:3,13
59:3 81:5	<b>call</b> 49:22	16:16 19:9	151:15,17
	129:25	22:4 24:4,16	152:9 153:6,7

154:22,25	8:11 199:2	176:18 194:16	19:19 38:21
155:5,7,12	<b>case</b> 1:5 7:18	206:16 207:6	39:2,8 42:16
156:7 157:16	15:15,20 21:6	<b>categorical</b> 6:4	43:7 44:2,4
157:19 159:7	34:25 35:9	<b>categories</b>	64:22 65:16,19
165:10 166:3	47:13,13 63:20	12:19 44:23	92:21 122:16
166:24 168:2,5	64:4,6 82:7,7	59:7 84:21	132:19 171:12
168:15,23	84:8,9 89:20	129:2 135:11	171:17 173:1
169:12 170:2,3	92:13 97:19	<b>category</b> 59:22	210:13 212:10
170:11 171:24	108:13 112:10	60:6,15,19	212:12,20
174:19 175:3,7	112:13 139:14	63:3 100:12	<b>causative</b> 25:13
188:13 194:9	139:18 143:11	105:2,15	142:22
194:12,14,16	147:9,14	106:16 109:20	<b>cause</b> 6:5 25:17
197:21 199:1	151:17 158:6	110:5,17,24	25:19,22,23
199:10 200:6	158:10 171:24	115:12,13	26:5 50:3 95:4
202:11,12,14	172:21 173:22	117:7,10,14	141:4 142:8,14
202:15,21,24	173:22 174:6	118:14 119:2,5	142:17,25
203:19,24	178:8 179:1	125:12 129:9	143:3
204:7,15	190:5,11	129:13 135:17	<b>caused</b> 25:6
209:23	206:10,20,22	136:12 149:9	122:17 194:16
<b>cancers</b> 19:8	207:2,4,17	149:18 150:17	<b>causes</b> 22:14,17
133:4 140:14	208:7 210:9	150:21,23	22:19 23:2
192:5,10	223:1 224:1	151:8 153:24	98:18 99:6,9
<b>capable</b> 52:11	<b>cases</b> 1:9 15:4	164:14 167:9	<b>causing</b> 141:23
141:22	45:25 46:11	167:12,19	<b>caution</b> 93:12
<b>cape</b> 199:2	48:24 51:6	168:8,18	93:18 94:7
<b>carcinogens</b>	59:5 82:12,13	174:13,17	191:11
192:13,17	91:14 99:16,25	175:9,13,16,23	<b>caveat</b> 21:21
<b>care</b> 206:16,24	105:14 110:6	176:4,21 182:8	94:18
207:13,17,21	110:22 111:1	187:25 188:2	<b>caveats</b> 104:19
208:2,10,11,13	115:1,5,10,15	<b>causal</b> 23:1	<b>cdc</b> 197:10,13
208:14	118:6,24 119:7	43:18	197:15,19
<b>carefully</b> 222:3	120:18,25	<b>causation</b>	<b>certain</b> 12:13
<b>carolina</b> 1:2	152:9 153:8	15:23 16:12,15	12:18 65:12
2:10,14 3:5	166:3 168:2,23	16:23 18:2	

<b>certificate</b> 221:1	70:1,13 72:2 73:9 173:6	<b>chosen</b> 220:8	149:2 154:5,9
<b>certified</b> 1:17 1:18 205:4 221:1,2,3,15,16	<b>chemicals</b> 25:10 33:1 36:12,22 42:21	<b>cigarette</b> 198:3 198:9,15 219:18	154:9 188:10 188:21
<b>certify</b> 221:3,6 221:9,10 224:3	63:15 81:6 89:15 140:24 145:24 171:9 178:2 199:11 199:18,22 201:6 209:16 211:12 215:9 215:14	<b>cigarettes</b> 193:21,23 194:1 195:16 195:25 196:4 196:16,23,24 197:6,7,12 198:4,17,22	<b>civilians</b> 85:16 174:22 219:22 219:24
<b>chance</b> 38:23 216:3	<b>chemistry</b> 64:12	<b>circle</b> 1:20	<b>clarify</b> 143:20 158:23 188:18
<b>change</b> 17:16 18:6 19:1,10 28:16 78:8 82:3 214:12 217:1 218:24 223:3	<b>child</b> 186:5,8 186:12	<b>cite</b> 41:8 44:6 91:3 95:18 100:8 109:15 109:16 122:4,4 132:18 134:23 135:20 136:8 152:12,14,16 164:7 170:25 173:18	<b>clarifying</b> 81:9 89:6 159:11 182:11
<b>changed</b> 80:17	<b>chloride</b> 25:12 27:13 41:18 52:6,19 71:23 71:25 79:19 84:23 118:13 118:15,19 140:7,12 143:7 143:9 152:22 152:23 153:11 160:19 168:7 169:11,14,15 171:16,23,24 172:19,23 173:4,5 176:20 177:22 189:23	<b>cited</b> 43:6,8 116:24 117:3 134:25 135:2 164:10 173:19	<b>classes</b> 48:22 48:23
<b>changes</b> 36:1,5 80:4 147:6 161:23 162:2 180:1 181:11 184:6 197:24 208:11,12,12		<b>citing</b> 85:25 106:18 166:10	<b>classified</b> 52:13
<b>characterizing</b> 101:10		<b>city</b> 2:4	<b>cleaners</b> 130:13 133:4 134:5,10
<b>charge</b> 214:10		<b>civil</b> 1:14 58:2	<b>cleaning</b> 6:9 130:16,25 131:25
<b>chart</b> 60:4,15 68:15,19 139:21,21 146:21 184:23		<b>civilian</b> 7:12 88:3,9,21 89:8 89:10,14,21 90:6,11 91:10 91:14 92:4,12	<b>clear</b> 25:20 84:11 92:11 105:17 129:1 141:20 144:12 146:22 149:16 177:8
<b>check</b> 147:23	<b>chose</b> 43:11 128:18		<b>clearly</b> 91:19
<b>checked</b> 54:14			<b>clinical</b> 23:9,10 63:7,24 73:23 74:1,18 75:3 201:2
<b>chemical</b> 33:9 51:24 61:4,16 62:23 64:15			<b>clja</b> 5:21,21 66:25 67:3
			<b>close</b> 212:6 217:16

<b>cms</b> 57:25 58:1 58:15 <b>coal</b> 6:12 <b>cohort</b> 7:6,13 104:8,10 126:24 127:9 127:17 148:25 150:2 154:10 155:18 210:4,6 210:10 <b>cohorts</b> 90:5 107:18 149:4 <b>coleman</b> 2:8 <b>collarile</b> 6:11 38:25 <b>colleague</b> 211:23 <b>college</b> 6:18 205:5,13 209:4 209:10 <b>colloquially</b> 22:24 <b>colorado</b> 1:20 8:8 <b>column</b> 59:25 61:8,17,18,18 61:18 93:23 127:3 130:22 131:7,12 215:21 216:4 216:18 218:1,6 218:6,14,15 <b>columns</b> 61:19 79:23,24	<b>combination</b> 91:25 123:6 169:22 <b>combined</b> 23:11 77:9,10 83:23 <b>come</b> 47:19 89:3 98:22 146:14 161:2 161:19,20 182:7 <b>comes</b> 65:11 <b>comfort</b> 51:21 <b>coming</b> 160:22 <b>commencem...</b> 221:3 <b>commencing</b> 1:21 <b>commenting</b> 207:3 <b>comments</b> 219:4 <b>common</b> 23:6 23:17 50:11 173:6 <b>communicate</b> 207:12 <b>communicated</b> 13:5 <b>communication</b> 27:6 <b>communicati...</b> 12:14,19,23,25 13:4,8,12,14,16	21:18 58:3,12 <b>community</b> 219:6 <b>compare</b> 42:1 149:24 174:21 180:3 182:21 199:16 215:21 <b>compared</b> 18:25 36:20,25 86:14 88:1 94:22 101:2 113:7 115:20 116:8 117:19 118:15 151:8 152:3 164:14 164:23 165:7 169:25 216:6 <b>comparing</b> 43:23 104:12 108:5 123:25 163:14 183:7 217:10 <b>comparison</b> 171:8 199:19 220:8 <b>comparisons</b> 44:11 140:17 <b>complete</b> 15:14 15:17 77:24 224:7 <b>completely</b> 9:15 31:17 34:16 46:20 56:7 89:1,12	<b>complex</b> 51:22 <b>compound</b> 28:5 28:10,13 29:25 30:7 171:11 211:20 <b>compounds</b> 26:3 30:1 40:8 41:13 52:14 65:6 66:3 70:16 84:23 122:17 146:4 151:1 169:22 <b>comprehensive</b> 29:2 31:17 35:20 65:7,8 <b>computer</b> 55:16 56:2 80:11 <b>concentration</b> 33:9,12 63:3 67:8 73:21 74:15,20 82:19 95:16 146:3 159:9 <b>concentrations</b> 33:1,22 52:21 67:16,19 96:22 97:5 192:21 193:1 <b>concept</b> 91:21 <b>concern</b> 51:15 210:4,4 <b>concerned</b> 50:23
--	---	--	--

<b>concerning</b> 42:20 78:3 113:13 199:17 206:10 221:5 <b>conclude</b> 188:9 220:15 <b>concluded</b> 220:23 <b>conclusion</b> 23:24 133:23 134:6 187:21 <b>conclusions</b> 35:6,10 82:4 93:16 140:16 218:21,24 <b>concretely</b> 46:12 <b>condition</b> 22:14 <b>conduct</b> 13:3 24:20 64:25 <b>conducted</b> 202:9,19,23 203:18 204:14 <b>conducting</b> 107:17 <b>confer</b> 211:23 <b>confidence</b> 47:3 86:25 87:3,5,8,20 88:10 91:3 98:9,12 99:5 100:8,13,14,20 101:1,3,4,5,10 103:5,13	104:16,21,23 104:24 105:5 105:20,21,24 110:5,21,25 111:3,5 114:20 114:23 116:15 116:18,19,22 118:3,9,11,20 119:3,10,11,12 119:23 120:2 120:14,21 121:3,4,5 129:14 136:14 136:16 137:3,6 137:13,17 150:14 151:16 151:21 163:18 164:3,10,19 165:12,15 166:2,20 167:12 168:1 168:10,21 176:17 <b>confidential</b> 111:8 <b>confirm</b> 13:11 65:23 96:4 99:19 124:23 130:19 132:23 134:22 191:4 194:24 196:19 <b>confirmation</b> 31:20	<b>confirmed</b> 127:4 136:8 <b>confirming</b> 139:17 163:21 188:24 <b>confounder</b> 127:7 137:21 138:5,10 <b>confounding</b> 112:20 138:20 <b>confusion</b> 86:6 <b>congress</b> 2:17 <b>conjunction</b> 159:6 <b>conservative</b> 61:11 69:8,15 106:9 <b>consider</b> 22:14 24:1,13 25:2 46:5 65:20 68:8 71:7 113:3 123:11 159:4,5 170:20 171:20 202:1 211:3 <b>consideration</b> 21:10 24:25 45:8,9 70:11 170:17 171:1 197:20 <b>considerations</b> 44:25 69:18,22 190:2	<b>considered</b> 5:16,19 17:12 17:14 18:21 19:12,16 20:1 35:22,25 51:1 57:3,10 87:13 87:21 92:18 112:9 114:19 115:5 119:15 121:7 124:4 127:14,15 128:22,23 129:3 136:21 139:5 149:17 157:20 169:21 171:4,5 174:1 178:4 190:7,18 190:21 197:25 211:6 212:18 <b>considering</b> 29:25 71:6 112:11,16,18 143:9 197:22 <b>consisted</b> 147:18 <b>consistent</b> 127:24 128:1,9 184:22 <b>consistently</b> 93:1 117:2 170:6 <b>construct</b> 49:14 <b>constructed</b> 54:11
--	--	--	---



<b>constructing</b> 43:2	43:13 50:10 51:4 92:19	111:19 124:17 141:13	64:10,11,13,14 64:16,17,19,20
<b>construed</b> 69:5	103:23 104:1	<b>corner</b> 66:24	64:23 65:13
<b>consulted</b> 63:22	191:12 192:1	99:3 181:22	68:22,23 72:10
<b>consumed</b> 60:22,25	<b>continue</b> 86:5	182:14,25	72:14,17 73:2
<b>consumption</b> 59:9,10,11,23 60:5,8,13,13 113:17 218:5	<b>continued</b> 3:2 6:2	183:20 185:3,4	75:8 77:3,4,16
<b>contain</b> 55:8,11 56:12	<b>contravene</b> 19:4	<b>corps</b> 7:10,13	77:20,22,23
<b>contained</b> 55:1 60:9 93:6	<b>control</b> 7:18	<b>correct</b> 11:16 11:24 12:24	79:4,10 80:11
<b>containing</b> 56:4	<b>contributing</b> 155:13	13:20 16:3,9	81:2,4,8,12,13
<b>contains</b> 15:14 15:19 77:21	<b>contributory</b> 159:6	16:10,14,17,25	81:15,18,22,23
<b>contaminant</b> 148:18 149:23	<b>control</b> 7:18	17:20 19:17	83:14,25 84:1
<b>contaminants</b> 53:9	<b>convenience</b> 206:3	20:7,14 23:22	84:16,18,24,25
<b>contaminated</b> 7:5,9,15 31:10 31:16 160:12	<b>convention</b> 87:9,12 88:13 164:4	24:22 25:6,7	85:2,3,10,11,14
<b>contamination</b> 31:21 37:5,7 38:2 69:21 94:4 220:10	<b>conventions</b> 136:18,20	25:24 26:22	85:15,20,21,23
<b>contemporan...</b> 206:9	<b>conversation</b> 13:8 47:22	27:14,15,18	86:1,2,8,11,16
<b>content</b> 74:6	<b>conversations</b> 13:1	30:2,23 31:2	86:17,20,21
<b>context</b> 22:3 25:16 30:4,5	<b>convert</b> 112:2,6	31:10,23 32:12	87:1,2,22 88:3
	<b>copies</b> 20:16 56:3 80:9	33:2,3,6,7,9,14	88:4,7,8,11,12
	<b>copy</b> 10:11,20 11:7 14:14,24 19:12 77:24 86:7 95:24 96:14 101:19 106:21 111:16	33:16 35:14,15	88:14,16 89:16
		36:12,13,18	89:18 90:12,14
		37:9,12 38:4,6	90:15 91:5
		39:6 40:15,23	92:22 93:4
		41:8,9 42:3,5	94:15,16 95:2
		42:17 43:9,10	95:9,10,13,14
		43:20 44:8,9	95:16,17,19,20
		44:14,15,17,21	98:1,7 99:13
		48:2,5,13 49:3	99:23 100:2,5
		49:6,9,15	100:7,9 102:3
		50:24 52:14,15	102:8,14,15,18
		53:2,3,10,25	103:2,3 104:6
		54:6,25 55:14	104:10,14
		56:20,20 59:14	105:5,6,10,15
		62:5 63:5,6	105:16,18,19
			105:22,23

106:4,7,16,17	128:14,23	153:8,9,13,14	175:20,24
106:19,20	129:4,5,10,11	153:18,19	176:1,6,7,10,12
108:11 109:1	129:15,16,20	155:13 156:10	176:13,19,22
109:17,18,20	129:21,24	156:11,13,14	176:23,24
109:23,24	130:13,17	157:16,18	177:4,6,11,12
110:11 111:9	131:5,14,19	158:4,8 159:16	177:15,16,17
111:13,14,15	132:8,16,17	159:22 160:1,4	177:22,23
111:25 112:1,4	133:8,10,15,18	160:6,7,9	178:2,3,5,6,19
112:5,7,8,11,13	134:12,13	161:17 162:11	178:20 179:1,2
112:16,17	135:3,4,9,10	163:8,9,15,16	179:5 181:23
113:3,4,10,11	136:10,14,15	163:19,21	182:1 184:2
113:22 114:16	136:18,20	164:5,6,8,9,15	185:5,6,14
114:24 115:2,3	137:4,5,8,14,15	164:16,20,21	186:6 187:3,4
115:6,7,10,17	137:18 138:7	164:23,24,25	187:8,9,13,14
115:20,21	138:22 139:12	165:8,9,12,13	188:25 189:11
116:2,9,10,12	139:19,20,20	165:16,17,20	189:12,15,16
116:15,16,20	139:23 140:7,8	165:21 166:3,4	189:18,23
117:1,2,7,14,15	140:13,16,19	166:7,8,11,12	190:8,9,19
117:19,20	140:25 141:1	166:14,15,21	191:6,7,9,11,13
118:3,4,6,7,10	142:10 143:18	166:22,24,25	191:17 192:23
118:11,15,16	144:3,11,17,25	167:3,6,9,10,13	193:22 194:23
118:21,22,24	145:5,6,13,14	167:14,16,17	195:10,16,21
118:25 119:3,8	145:15 146:24	167:20,21	195:25 196:13
119:16,20,24	146:25,25	168:2,3,5,6,9	196:24 197:4,8
120:7,8,11,15	147:5,15 148:5	168:11,12,15	197:9,17 199:6
120:16,19,22	148:6,11,12,20	168:16,16,19	199:12,13,18
120:23 121:1,8	148:21 149:1,5	168:20,23,24	199:23 200:9
121:10 122:6	149:6,10 150:4	169:3,4,8,9	200:14 201:3,4
122:10,11,23	150:5,14,15,21	170:5,6,25	201:20 202:2,3
122:24 123:2,7	151:5,6,9,17,18	171:9 174:3,4	204:2,16,18
123:8 124:9,14	151:20,21,25	174:11,12,16	205:5,6,21,24
124:19,22	152:1,4,5,10,12	174:19,20,22	207:7 208:20
125:1,14,20	152:13,15,18	174:23 175:10	212:24 214:3,5
126:2,3,18,24	152:25 153:2,3	175:13,17,18	215:10,23

216:1 217:7,8 217:17 218:2 218:12,22 220:5 224:7 <b>corrected</b> 6:16 179:10,21 180:11,15 182:13,22 183:6,8 184:1 184:13,16,19 184:24 185:4 <b>corrections</b> 222:3,4 <b>correctly</b> 24:17 24:18 38:17,18 38:24 41:21 54:18 67:24 88:23,24 94:8 94:9 99:10,11 103:14,21,22 104:18 107:21 116:20,23 119:5 127:12 131:2,21 132:2 134:13 137:19 138:6,7,11,13 139:1,2 142:3 142:4 149:15 188:15,16 204:1 206:11 206:12 208:8,9 208:21 <b>correlate</b> 155:11	<b>correlated</b> 123:20 157:14 <b>correlation</b> 45:14 <b>correspond</b> 80:21 170:10 <b>corresponden...</b> 57:23 <b>corresponding</b> 79:21,24 180:10 <b>counsel</b> 8:14 21:19 56:17,17 57:24 58:18 59:1 102:17 103:17 212:23 214:19 215:7 221:11,12 <b>count</b> 72:20 <b>countries</b> 6:10 7:19 130:17 131:1 132:1 133:4 <b>couple</b> 124:20 172:8 214:24 <b>course</b> 17:9 <b>coursework</b> 48:21 <b>court</b> 1:1 8:10 8:19 9:15 221:15 222:10 <b>courts</b> 1:15 <b>covered</b> 190:14	<b>create</b> 208:18 <b>credibility</b> 219:7 <b>creek</b> 1:19 <b>criswell</b> 5:8,16 14:17 15:4 24:11 38:8 39:23 60:2,16 76:4,9 77:15 77:21,25 78:3 79:8,11 80:10 81:10 84:17 88:19 91:4 94:13 95:8 100:3,6 106:2 106:15 109:19 111:8,14,22 113:6,13 114:24 115:19 116:24 117:9 117:18 118:10 118:14 120:6 121:24 122:2 134:25 139:11 139:24 140:4 152:18 196:14 197:16 215:4 215:15 216:7 216:18,21 217:2,24 218:20 <b>criswell's</b> 84:8 109:16 123:5 139:14 143:11	173:22 <b>criticism</b> 210:25 <b>criticisms</b> 210:19,23 <b>crosses</b> 103:6 104:17 120:2 164:6 <b>crude</b> 112:15 114:18 138:19 <b>cubed</b> 33:19 38:15 135:3,12 135:13,14 <b>culprit</b> 25:14 <b>cumulative</b> 5:23 6:5 30:20 55:4,4 59:4,6,7 59:8,9,11,15,22 60:5 61:8,24 80:25 94:3 95:12 116:7 118:1,19 120:10 123:23 123:25 145:12 145:18 146:5 165:6 169:24 182:6 189:6 195:15,24 196:3 199:10 199:16,22 200:8 215:8,13 215:20 216:5 216:17 217:4 217:10,13,17
---	--	---	---

217:18,25 218:2,5,7,9,11 <b>current</b> 50:3 156:4 <b>currently</b> 155:16 <b>curve</b> 19:7 <b>cv</b> 1:6 224:2	177:17 186:1,4 189:14,17 190:24 191:16 193:8 199:17 <b>databases</b> 202:20 203:3 203:23 204:6 <b>date</b> 16:20 32:13 65:6,18 65:19 155:8 160:10,14 180:18 213:15 221:7 222:6 223:2 224:12 <b>dated</b> 15:12 19:12 20:6 221:17 <b>dates</b> 18:18 68:15 144:12 163:3 180:16 181:6 183:25 185:15 <b>david</b> 2:12 3:6 8:17 9:7 <b>david.r.ortiz</b> 3:6 <b>davis</b> 2:3,7 <b>day</b> 22:12 23:8 67:20 69:6 74:25 144:19 171:3 192:13 192:17,19 193:12 196:16 196:23 197:6	198:3,9,9,16 224:15 <b>days</b> 68:7,8,20 148:10 222:8 <b>dbjlaw.net</b> 2:5 2:6 <b>dce</b> 25:15,17,18 25:22,22 26:3 26:5 94:20 95:1,4 150:24 151:1 <b>de</b> 44:20 45:11 45:20 46:10,17 47:6 170:22 178:1 201:18 201:24 <b>death</b> 6:5 98:18 99:6,9 <b>decades</b> 201:7 <b>december</b> 85:18 88:2 144:9,18,19 160:6,17 162:14 163:11 174:10,10 188:8,11 <b>decide</b> 84:2 <b>decision</b> 45:19 45:25 46:16 <b>decreased</b> 105:9 117:12 129:13 137:17 <b>decreases</b> 119:2 120:20	<b>deemed</b> 222:9 <b>defendant</b> 3:3 102:14 208:19 <b>defendant's</b> 5:6 11:8 <b>defendants</b> 102:16 <b>defense</b> 102:17 <b>define</b> 47:4,9 52:9 <b>defined</b> 46:1 87:16 95:12 <b>defines</b> 86:19 88:6 197:10 201:23 <b>definitely</b> 47:10 <b>definition</b> 87:18 88:17 119:20 127:24 197:13,15,19 <b>degree</b> 35:13 45:13 64:9,12 64:15,18 74:1 124:11 192:20 <b>deleted</b> 55:21 55:25 80:13 <b>demonstrated</b> 37:1,2 40:8 41:13 42:14 155:4,8 209:21 220:4 <b>demonstrates</b> 103:8,12
<b>d</b>			
<b>d</b> 4:1 <b>daily</b> 66:2 67:9 67:12 68:3 138:24 <b>data</b> 19:15 32:11 36:20 40:25 67:11 69:8,15 77:14 90:22 105:7,11 106:6 113:1,4 123:10 124:7 134:9 137:24 140:17 143:17 143:19,21 145:4,7 146:23 148:2,3 152:15 152:17 154:19 155:15 157:12 161:2 163:2,15 166:9 169:25 170:25 171:15 171:21 172:10 175:19,25 176:24 177:5			

<b>denoting</b> 128:18	17:15,23,25	<b>describe</b> 33:8 81:24 211:2	<b>developing</b> 172:14 182:20
<b>deny</b> 194:24	19:2 20:5 43:4	<b>described</b> 33:10	<b>development</b> 91:12 155:7
<b>department</b> 3:4	52:25 53:9	<b>describes</b> 207:10	188:12,13
<b>departures</b> 76:14	56:22 59:12	<b>describing</b> 33:12 63:3,4	<b>diagnosis</b> 22:8
<b>depend</b> 28:9	60:21 86:4	95:15 101:1	22:11,15,23
35:13 46:21	92:20 93:8	<b>design</b> 202:15	23:3,3,21 24:2
47:15 126:8	95:23 100:18	<b>despite</b> 218:19	24:14,21 25:3
<b>dependent</b> 71:9	101:24 102:2,7	<b>detail</b> 67:16	150:4
92:8	102:11,18	184:13,20	<b>differed</b> 97:16
<b>dependents</b> 7:9	103:17 106:24	190:13 209:14	<b>difference</b> 28:22 44:22
<b>depending</b> 27:19 29:5	107:3 111:18	<b>details</b> 76:16	79:21 80:22
35:1 51:21	113:18,21	76:18,21	91:1,20 106:11
53:18 69:4	114:2 124:16	106:13 107:5	106:14
176:5 197:23	124:25 125:4	125:2 126:25	<b>differences</b> 18:24 28:8
197:24 198:1	141:3,14 142:6	146:12 185:22	79:13,22 91:7
211:19 214:20	158:1 178:5	186:16	<b>different</b> 22:25
<b>depends</b> 23:15	186:15,21,23	<b>determination</b> 201:20 210:5	28:2,6,24 35:4
28:5,18 29:24	190:6 193:17	<b>determine</b> 46:17 47:13	35:12 44:24
52:8 64:3 68:7	195:12,19	52:9 67:8 73:8	58:10,19 62:14
70:2,24 73:10	196:15,19	87:14 90:24	72:6 73:17,21
197:21	202:6,8 203:6	100:20 132:13	73:22,24 74:15
<b>deployments</b> 76:14	212:8,11	195:13	79:16 80:1,2,4
<b>deponent</b> 8:12	213:18 214:4	<b>determining</b> 109:4	82:2,2 84:20
<b>deposed</b> 9:9	215:3,16,19	<b>developed</b> 51:16 91:17	87:15 90:3,4,8
16:18	220:16,22	123:21	90:24 92:10,12
<b>deposing</b> 222:8	221:6 222:3,6		97:24 138:17
<b>deposition</b> 1:13	222:9,9 223:2		138:25 142:10
5:3,6 6:7,14	224:4,8		142:21 146:19
8:7 9:8 10:8,20	<b>depositions</b> 1:16 195:6		182:17 185:2
11:9,19,24	<b>dermal</b> 30:15		187:20 189:18
	36:17 122:25		
	123:7 124:8,12		

202:20 204:4 <b>differential</b> 22:7,8,11,11,22 22:22 23:20 24:2,6,14,20 25:2,3 90:25 <b>differently</b> 72:5 <b>dilutes</b> 74:22 <b>direct</b> 13:1,8 27:6 43:5 57:22,23 93:19 98:23 105:1 107:13 125:9 126:23 127:7 127:16 141:18 149:12 154:19 155:17,17 185:10 186:24 191:3 210:3,9 210:10 <b>directly</b> 63:17 80:21 108:23 122:9,14 123:5 123:10,20 156:15 162:5 194:13 <b>disagree</b> 132:10,12 157:6,8 191:22 199:5 <b>disavowing</b> 89:4 <b>disclosed</b> 15:4 16:12 21:20	179:10 212:18 <b>discovery</b> 50:22 <b>discrepancies</b> 218:19 <b>discrepancy</b> 184:21 215:13 <b>discuss</b> 15:22 34:4 39:8 44:1 58:5 92:19 107:24 108:3 111:7,11,13 120:3 128:8 140:20 152:14 152:16 180:13 187:19 <b>discussed</b> 17:24 32:5 38:1 39:2 41:3,7 44:3 73:12,13 77:18 81:14 107:6 140:18 143:11 143:12 152:17 152:21 158:10 159:8 164:17 166:9 167:15 173:23,25 175:12,19,25 176:8,14,24 177:5,17 178:8 178:12,18 183:24 184:25 189:14,17 190:10 209:13	210:21 211:5 212:14 214:17 <b>discussing</b> 30:18 47:16 55:6 70:3 71:10 72:21 73:11 103:23 121:23,25 122:17 136:11 170:1 211:20 <b>discussion</b> 39:18 51:2 107:11 152:11 190:3 193:6 <b>discussions</b> 32:22 202:8 208:10 <b>disease</b> 31:2 <b>dismiss</b> 170:21 <b>disproportion...</b> 219:23 <b>disregard</b> 84:14 <b>distribution</b> 31:9 50:14 <b>district</b> 1:1,2 1:15 8:10,11 <b>divide</b> 112:7 <b>divided</b> 154:3 <b>division</b> 3:10 <b>dms</b> 217:12,22 <b>doctor</b> 180:21 <b>document</b> 1:8 7:8 10:23	11:12 18:16 60:11 66:18 78:16 79:7 80:15 93:5 101:22 110:8 115:24,25 117:22 124:25 133:22 134:20 134:21 136:7,8 136:10 173:15 178:5 179:22 180:2 205:3,7 206:13,19,25 207:11 <b>documented</b> 83:10 <b>documents</b> 5:4 12:14,19,23 13:3 41:1,1,3 55:7 60:9 83:6 139:10,13,15 139:18 140:21 158:2 174:2 181:17 190:6 212:17 <b>doing</b> 27:16 40:13 146:5 194:6 222:5 <b>doj</b> 8:18 215:7 <b>dose</b> 19:6 27:23 28:2,22,22 29:11,18,19 30:2,5,10 40:6 47:1,2 54:4
---	--	--	--

69:25 70:13,22 70:23 71:1,6 71:12,15,22,25 72:2,5 91:22 92:3 111:23 113:9 123:23 123:25 145:12 145:18 169:5 172:2 177:24 189:20 <b>doses</b> 27:13 71:8 <b>double</b> 54:14 147:23 <b>doubt</b> 130:20 <b>dr</b> 5:7,16,18,23 6:7,15 9:6 11:9 20:5 21:14 24:9 26:1,6,11 27:2,10,12 30:14 33:24 34:8,12,21 36:2 39:23 42:16 44:19 54:4,19 56:5 56:23 57:8 59:6,16,19 60:7,21 68:2 72:1 76:3 78:3 78:18,21 80:20 82:11 83:23 84:3,10,12 94:13,20,22 97:4,9 100:17	101:23 113:8 113:12,23,24 121:19 122:22 123:12,17,21 123:24 124:6 136:6 139:22 140:11 141:12 144:1 145:10 147:7 151:1 156:16,23,25 158:7,21 160:23,24 161:3,6,14 162:21 169:6 169:23 177:25 179:5,9 180:1 180:9,22 181:24 183:9 183:10,24 184:13 185:3 186:10,22 189:21 198:25 199:4,8 200:25 204:20 209:13 210:14,15,16 212:6,11 214:24 215:10 215:14,22 216:6,16 217:5 217:12 218:10 218:21 220:12 <b>draft</b> 20:4 55:18,18,19,24 56:15,22	<b>drafting</b> 47:21 <b>drank</b> 74:13 <b>draw</b> 173:16 <b>drawing</b> 128:12 <b>drink</b> 74:5 <b>drinking</b> 7:5,9 7:13,16 98:17 99:8 186:12 <b>drinks</b> 74:24 <b>drive</b> 28:7,21 <b>driver</b> 128:17 <b>dropped</b> 39:11 162:11 <b>dry</b> 1:19 6:9 130:13,16,25 131:25 133:4 134:5,10 <b>due</b> 99:5 <b>duly</b> 8:24 9:2 221:4 <b>duration</b> 85:9 86:14,20,23 88:1,6 91:24 93:10 94:2,6 123:19 149:22 150:12 154:7,9 187:16 197:24 <b>dyer</b> 5:14,16 6:16 14:19 15:6 178:21,22 179:10,21 180:2,6,15 181:1,18,25	182:22,24 183:8,10 184:6 185:12 186:1 186:12,25 187:18,24 189:8,22 198:8 198:15 <b>dyer's</b> 178:25 186:11,24 188:9 190:5,11 198:24  <b>e</b>  <b>e</b> 2:1,1 3:1,1 4:1 5:1 6:1 7:1 38:25 223:1 <b>e.g.</b> 127:10 <b>earlier</b> 40:4 47:25 73:12,13 77:18 80:8 94:13,24 122:21 128:12 140:21 143:16 144:16 150:12 152:18 153:23 164:17 174:24 188:1,22 190:3 190:17 201:1 201:15,17 215:6 219:18 <b>easier</b> 47:8 91:14 <b>eastern</b> 1:2 6:13 8:11
--	---	---	---

<b>education</b> 202:4 <b>effect</b> 73:18 92:1,5 138:10 <b>effects</b> 29:20 73:23 74:2,7 74:18,20 75:3 95:1 98:17 99:8 108:7 <b>either</b> 69:12 83:22 88:14 140:23 176:4 204:18 208:19 <b>electronic</b> 56:3 80:9 <b>electronically</b> 55:15 <b>elevated</b> 37:2 41:15,19 42:12 43:14,24 85:13 85:19 92:24 108:17 111:11 127:20,24 128:3,5,6,10,18 128:22 129:4,7 129:19,23 130:1 134:4 150:2 154:21 155:4,19,24 157:15 166:23 168:14 170:2 170:10 172:1,5 174:18 175:5,5 178:16 188:11	192:5 209:22 <b>email</b> 13:11 65:12 80:18 <b>emergency</b> 6:18 63:8 205:4,5,13,15 205:20,23 206:16,25 207:17,21 208:13 209:4 209:10 <b>emissions</b> 191:16 <b>employ</b> 22:12 <b>employed</b> 26:2 88:1 94:3 <b>employee</b> 221:11,12 <b>employees</b> 7:8 <b>employers</b> 50:18 <b>employment</b> 20:22 133:5,13 133:14 <b>encounter</b> 173:7,8 <b>ended</b> 10:12,13 <b>endpoint</b> 202:12,16,21 <b>ends</b> 160:6 <b>engineer</b> 49:3,4 <b>engineering</b> 64:10,16	<b>ensure</b> 54:11 <b>entail</b> 21:18 <b>entire</b> 22:18 26:15,17,23 66:5 72:4 78:19 132:13 <b>entitled</b> 58:6,11 58:14 205:14 <b>entries</b> 181:12 216:24 <b>environmental</b> 48:22,23 49:8 49:11,13 64:10 <b>epa</b> 40:21,22 140:21,24 193:7 <b>epidemiologic</b> 22:4 41:4 43:14 202:13 203:2 210:12 <b>epidemiologi...</b> 202:10 203:19 204:14 210:21 215:22 <b>epidemiologist</b> 202:2 <b>epidemiology</b> 48:20 202:5 <b>equal</b> 73:20 74:4 99:22 126:1 <b>equals</b> 38:15 <b>equipment</b> 28:15	<b>equivalent</b> 33:5 33:20 85:22 89:22 198:1 <b>equivocal</b> 133:18 134:1,3 <b>errata</b> 222:4,5 222:8 <b>error</b> 35:3 <b>errors</b> 53:23,25 <b>especially</b> 209:23 <b>esq</b> 2:5,6,7,11 2:12,15,19 3:6 3:7 <b>essence</b> 128:25 <b>estab</b> 143:3 <b>established</b> 142:20 143:4 <b>estimate</b> 22:1 49:20 61:9,11 61:23 62:3,7 66:2 67:12,16 68:2,5,22,24 69:20 84:3 94:21 103:4,12 104:16 105:11 113:20,22 123:18,25 127:6,23 128:4 148:6 151:11 160:21 164:18 194:18,21 201:6,13 213:14,17,18
--	--	---	--



<b>estimated</b> 26:16 36:11 43:12 50:9 54:10 60:8 67:22 94:23 122:22 123:24 124:7,10 127:10 145:19 149:20 151:1 159:8 160:20 171:20 172:3 172:20 188:6,7 191:1,2	114:12 <b>estimation</b> 60:21 146:6 <b>estimations</b> 45:22 155:18 <b>et</b> 6:9,11 7:4,11 7:15,17 <b>etiology</b> 22:7 22:11,22 23:1 23:21 24:6 25:2 <b>eval</b> 53:7 <b>evaluate</b> 48:12 48:18 49:16,23 50:9,12 61:6 71:5 72:4 107:19 132:8 157:12 219:16 <b>evaluated</b> 37:4 50:13,19 97:12 199:13 200:3 201:14 204:15 <b>evaluates</b> 49:10 62:12 <b>evaluating</b> 45:8 45:10 46:22 48:16,24 54:1 56:9 60:23 61:11 62:16 92:19 93:1 157:9 210:2 <b>evaluation</b> 7:4 51:3 155:8 203:23	<b>event</b> 208:7 <b>events</b> 53:19 <b>everyday</b> 172:19,24 173:5,7 <b>evidence</b> 46:23 46:25 93:1,3 128:13,20 133:17,23 134:3 171:12 210:9,11 219:22 <b>exact</b> 18:18 32:13 35:2 47:23 100:22 124:1 128:24 149:11 160:14 163:3 201:16 213:21,21 <b>exactly</b> 54:12 186:8 <b>examination</b> 4:3 9:4 51:14 215:1 221:3 <b>examined</b> 9:3 206:10 <b>examining</b> 43:12 <b>example</b> 28:20 28:23 29:4,10 33:17 45:16 46:7 70:8,9,18 71:4 91:11,18 101:3 126:14	128:4 147:9,20 155:20 170:18 192:22 193:11 195:9 202:17 219:13 <b>examples</b> 29:2 74:23 <b>exceeded</b> 196:4 200:7 <b>excel</b> 83:12 <b>except</b> 189:10 <b>excerpts</b> 180:22 <b>excess</b> 134:10 <b>exclude</b> 208:17 <b>exclusive</b> 33:11 33:21 101:7 <b>exclusively</b> 38:11 51:10 <b>excuse</b> 87:1 118:18 139:9 165:24 173:22 <b>exhibit</b> 5:2,3,5 5:8,9,11,12,14 5:15,18,20,22 6:3,4,6,8,11,14 6:16,18 7:3,4,7 7:11,14,17 10:11,14,15,19 11:1,2,7 12:12 13:22,25 14:4 14:10,11,11,11 17:2,7 19:11 19:20,25,25
---	--	---	---

20:9,12 21:12	<b>experience</b>	<b>explains</b> 91:20	45:20,23 46:5
21:15 24:10	20:17 48:24	<b>explicit</b> 21:25	46:9,10,13,14
38:8 39:24	62:16 154:16	23:23 57:17	46:18,22 47:2
60:3 66:7,13	172:18 202:5	122:13 199:19	47:5,7,8,19
66:18 68:11	<b>experienced</b>	<b>explicitly</b> 23:25	48:16 49:25,25
76:4 78:9,12	140:5 153:16	146:11,13	50:1,2,6,9
78:20,23 86:5	153:21 154:10	<b>exposed</b> 7:5,9	51:18,23 53:5
86:7 87:24	169:1 177:20	7:12 27:25	53:7 54:4,10
93:11 95:22,24	189:8	28:13 30:19	55:4 59:4,6,14
96:3,9,13	<b>expert</b> 5:23	36:21 44:12,13	61:3,9,15,22,24
101:14,15	27:3 42:16	67:9,21 81:20	62:1,7,10,13,16
106:23,24	49:9,10 50:22	82:18 83:21	62:23 63:18
107:14 110:10	57:1,8,24	108:17 112:10	64:1,3,4,5,6,7
111:18,19	63:18 64:8	128:5 154:24	68:3,8,15,20
118:18 121:24	102:14 156:18	155:3 157:5,13	69:10 72:12
124:16,17	156:19,20	169:11,13,18	73:8 74:2,12
125:4,10 130:4	157:1 205:14	169:19 170:4,8	75:3,18 81:22
130:9,10	205:19,23	170:9,12 171:2	82:16 83:9,10
134:14,19	206:4,4,14	171:6 173:4	83:23 84:21
135:5 139:5	208:15,23	192:13,18	85:17 89:19
141:8,13	209:5,8,11	193:11 199:21	91:1,24 94:4
179:16,20	219:15	210:8	94:14 95:4,9
203:5 204:21	<b>expert's</b> 208:5	<b>exposure</b> 5:23	95:11 97:2,3
204:24 215:4	<b>expertise</b> 48:12	7:18 24:25	100:5,12 105:2
215:16,19	48:17 173:13	25:18,23 26:1	105:9,10,12,13
<b>exhibits</b> 14:6	<b>experts</b> 50:22	27:3,12,20,22	105:15 106:16
15:2 16:24	64:2 210:14	28:4,17,22	107:25 109:20
<b>exist</b> 80:10	<b>explain</b> 59:21	29:5,6,9,18	110:5,17,24
172:24	60:5 80:2	30:6,12,20	112:24 113:7
<b>existing</b> 55:15	137:1 185:8	32:2 36:11,16	114:12,15
<b>expect</b> 92:5	187:23	36:25 41:22,24	115:12,13,19
<b>expected</b> 60:24	<b>explained</b>	41:25 43:13,17	116:8,14,17,21
60:25 172:17	42:11 43:10	44:6,19 45:4	117:3,7,10,13
	122:16 162:22	45:11,12,16,19	117:13,18

118:1,2,14,19	176:4,12,21	95:12 98:18	26:4 33:18,22
119:1,4 120:7	177:3,14	99:9 108:7	47:11 69:18,23
120:10,13,20	180:16,19	116:25 122:19	70:10,17,20
122:13 123:12	181:6 182:6	122:23 123:1,6	71:4 72:5,12
123:18,19,22	183:25 184:17	124:7,8 125:7	94:25 95:3
124:3,11	186:11 187:11	125:18 126:4,6	114:4,11
129:12 132:6	187:14,16	127:21 129:8,9	119:13 123:23
133:24 134:12	188:5,6,9,12,14	129:20 140:5	124:2 128:9
136:13 138:25	188:20 189:10	140:10,12	142:1 210:23
139:21 140:10	189:22,25	146:1 149:20	<b>expresses</b>
140:22 142:21	190:24 192:15	149:22,24	145:25
142:22 144:12	192:16 193:24	150:1 152:12	<b>expressing</b>
145:18,20	194:1 195:16	153:16,22	70:22,23 73:2
146:5 148:7	195:24 201:18	154:5 155:22	89:13 97:2
149:9,19,21	201:19,23,24	169:1 172:18	142:11
150:20 151:8	210:3 211:10	172:23 177:20	<b>expressly</b> 41:7
151:15,24	211:19 218:2	178:1 182:4	<b>extent</b> 21:17
152:3,8,15,23	<b>exposures</b> 6:5	188:7,10 189:2	103:16
153:2,5 154:1	20:23 22:2	189:6,9 192:25	<b>external</b> 109:13
154:11,16	24:1,13 25:5	196:3,4 199:11	<b>externally</b>
155:10 156:5,8	25:14 26:16,25	199:14,16,17	108:25
158:7 159:5	28:25 29:7	199:23 200:5,8	<b>f</b>
164:14,18,23	30:15 31:18	209:20,25	<b>f</b> 6:16
165:6,11,14,19	33:20 36:17,25	210:2,6 211:17	<b>fact</b> 25:5 114:9
166:1,6,14,19	38:12 40:7	219:12 220:10	<b>factor</b> 28:21
167:9,11,19,25	41:12,18 43:13	<b>express</b> 28:1	91:12 154:13
168:8,18 169:7	44:1 45:2,7	51:12 69:25	171:10 194:9
169:22,24,24	47:10 48:7	70:13 71:1,12	194:11
170:16,19,20	61:6 62:9	71:15,22,25	<b>factors</b> 22:15
170:22,24	63:14 68:6	72:2,7,23	28:7,11,14
171:2,4,4,7,9	71:8 72:8	100:23 146:2	30:9 53:6
171:21,23	84:18 88:22	155:3	73:24 75:2
172:2,6,11	89:15 90:9,12	<b>expressed</b> 25:8	90:7 128:16
175:3,9,16,23	90:16 92:4	25:16,21,25	

<b>facts</b> 19:15 46:22 47:16 127:1 208:16 <b>fade</b> 53:12 <b>fail</b> 222:9 <b>fair</b> 13:12 21:9 21:9 26:10 33:23 36:4,23 41:17 43:16 56:6,7 58:5 63:25 100:25 103:7 155:2 184:12 201:9 204:13 208:16 209:14 <b>fairly</b> 23:18 <b>fall</b> 172:4 176:3 <b>fallen</b> 166:6 <b>falls</b> 154:6,8 174:13 175:16 176:11 178:13 178:16 188:7 <b>false</b> 206:5 <b>family</b> 67:8 <b>far</b> 41:2 75:13 121:20 215:21 216:4,18 <b>fashion</b> 24:8 <b>favoring</b> 208:18 <b>fear</b> 199:2 <b>february</b> 15:12 19:13 160:13	<b>federal</b> 1:14 58:2 <b>fell</b> 95:8 117:4 117:9 154:1,4 165:18 166:13 167:19 168:7 168:17 175:8 177:3,13 <b>fibers</b> 71:4 <b>field</b> 59:13 60:23,24 113:18,21 114:2 203:24 <b>figures</b> 77:10 <b>file</b> 6:4 83:12 96:14 98:1 99:20 100:11 104:25 110:1,9 117:21 118:18 120:10 151:3 151:14 152:7 153:4 165:23 167:23 176:15 <b>files</b> 19:5 82:21 96:1 98:6 <b>filing</b> 51:9 <b>final</b> 18:8,10,12 18:16,21,25 19:5,7 35:2,7 40:20 56:19 83:17 160:10 184:5,16 190:21 212:16	<b>finally</b> 38:10 <b>financially</b> 221:12 <b>find</b> 157:22 183:2 <b>finding</b> 87:8 89:2,11 90:21 90:25 108:13 <b>findings</b> 103:24 132:15 134:6 137:8 <b>fine</b> 10:1 26:9 58:16 103:19 139:17 157:23 163:22 183:4 <b>finished</b> 67:17 121:25 <b>fired</b> 6:12 <b>first</b> 7:3 9:2 10:11 26:10,13 32:14 48:5 63:3 99:21 102:2 116:6 122:4 130:23 131:4,6,15 135:8 147:21 161:22 162:1 163:4 180:14 180:18,25 185:17 190:17 206:3,13 207:10 <b>five</b> 15:9 16:2,9 16:24 18:3	75:6 78:24 118:23 120:17 133:13 158:2 176:18 199:10 199:21 200:5 <b>flat</b> 214:5,8,10 <b>flip</b> 79:1 <b>fluctuate</b> 94:5 <b>fluids</b> 74:22 <b>fm</b> 59:13 <b>focus</b> 29:18 30:2 43:11,22 <b>focused</b> 43:23 <b>follow</b> 85:1 207:14,18 208:22 209:1 <b>following</b> 156:7 <b>follows</b> 9:3 <b>followup</b> 50:8 172:8 214:21 <b>font</b> 179:24 <b>foregoing</b> 221:6 224:4 <b>forget</b> 151:7 <b>forgot</b> 151:12 <b>form</b> 11:25 18:8,10,13,16 18:21,25 19:5 19:8 29:21 31:11 32:19 34:6,14,24 42:23 46:19 53:14,24 55:22 57:21 62:24
---	--	--	---

74:9 75:14 87:11 88:15 89:5,17,25 90:13,20 92:6 92:16 93:13 97:17 98:11,19 107:9 108:12 109:6 117:8 119:17,25 121:9 126:7 128:15 136:19 136:25 142:9 146:15 154:18 155:1 157:7,17 167:1 170:15 184:7,15 186:19 190:25 191:23 192:14 194:10 195:3 196:25 197:18 198:11 199:24 207:8 208:24 209:18 211:13 212:16 218:3 <b>formatting</b> 162:12 <b>formed</b> 217:5 <b>former</b> 7:8 <b>forming</b> 19:16 218:17 <b>formula</b> 56:10 <b>formulating</b> 65:8	<b>forth</b> 221:8 <b>forwarded</b> 80:20 <b>found</b> 127:19 129:7,18 134:4 172:1 192:4,11 <b>foundation</b> 186:20 191:24 195:4 197:1 198:12 206:6 207:9 208:25 211:14 218:23 <b>four</b> 59:7 81:6 115:1,9 126:12 133:12 178:1 190:6 <b>fourth</b> 60:15 <b>fractional</b> 83:9 <b>framework</b> 92:23 128:2 <b>frequently</b> 23:5 23:19 109:11 210:2 <b>fresh</b> 65:7 <b>front</b> 159:13 161:14 174:7 178:23 180:23 192:8 <b>fruechtenicht</b> 2:15 <b>full</b> 24:23 28:3 93:24 130:23 130:23 131:4,6 131:15,18	159:1 161:9 <b>fully</b> 31:18 36:15 170:21 <b>further</b> 107:19 220:13 221:6,9 221:10 <b>furthest</b> 131:12 <b>future</b> 12:9 50:7  <b>g</b>  <b>gas</b> 52:3,12 <b>gdavis</b> 2:7 <b>geiger</b> 32:1 76:20 <b>gender</b> 29:13 <b>general</b> 15:23 16:12,15,23 18:2 19:19 27:20 34:2,7 38:20 39:2,8 42:16 43:7 44:2,4 53:19 53:21 61:10 64:22 65:16,19 92:21 122:16 132:19 148:21 154:5 171:5,12 171:17 173:1 173:12 199:8 207:25 210:13 212:10,20 <b>generally</b> 20:21 53:22 76:17	81:14 119:22 120:1 <b>generated</b> 26:16 48:6 81:1 140:11 169:6 189:21 <b>geographic</b> 191:3 <b>geographically</b> 38:13 <b>getting</b> 96:2 <b>give</b> 26:19 56:16 201:13 202:17 <b>given</b> 107:16 124:6 184:6 187:25 224:4,8 <b>gives</b> 68:21 139:8,9 <b>giving</b> 17:21 193:16 208:7 <b>go</b> 10:12 37:10 38:10 39:14 40:1 53:16 58:4 60:3 65:14 68:10,18 68:19 76:3 81:10 84:20 86:18 87:24 94:12 97:1 100:11 115:14 117:22 121:12 126:17 127:18 135:23 139:4
--	--	---	--

139:24 144:11 144:12 150:17 151:3 158:24 167:1 177:8 180:6,14,21 181:16,18 196:21 200:18 203:4 208:5 <b>goes</b> 52:1 104:17 <b>going</b> 10:10,12 10:25 12:12 13:22 17:6 19:24 20:12 38:24 40:16,19 51:2 57:22 66:6 73:23 74:7,7,18 76:5 78:9 85:4 86:3 95:21 98:23 100:3 101:14 102:23 103:15 104:25 107:23 111:16 114:13 124:15 129:17 130:8 134:18 134:22 139:23 142:12,23 147:12 148:1 150:16 151:14 151:23 164:12 179:14 191:18 192:6 201:6 203:17 204:20	<b>golkow</b> 3:10 8:4 <b>good</b> 8:1 9:25 26:8 45:17 104:1 194:18 200:15 213:16 219:13,13,14 <b>goodman</b> 210:15 <b>goodman's</b> 42:16 <b>goodwin's</b> 210:16 <b>government</b> 41:5 109:12,14 219:5 <b>government's</b> 156:19 <b>governmental</b> 41:5 <b>grab</b> 106:21 <b>grant</b> 2:7 <b>grays</b> 70:10 <b>greater</b> 91:25 92:25 127:23 128:3 171:5 172:6 <b>greatly</b> 74:1 75:2,3 <b>grossman</b> 2:9 <b>groundwater</b> 49:5,7 50:14 <b>group</b> 86:20,23 88:6 95:9,11	113:7 114:15 115:19 117:18 118:2 120:7 152:3,8 153:2 153:5 163:18 164:23 165:11 165:15,19 166:6,14,19 176:12 177:3 177:14 <b>groups</b> 90:5,7 <b>guess</b> 49:19 80:9 188:18 190:16 <b>guidelines</b> 205:15,19,20 205:22 206:21 207:15,19,24 208:23 209:2,5 209:9 <b>h</b> <b>h</b> 5:1 6:1 7:1 <b>hadekhale</b> 37:23 <b>hadkhale</b> 7:17 38:2,16 122:5 124:18,20 125:6 126:22 127:19 129:6 129:18 <b>hadnot</b> 30:22 31:4 32:11 48:8 66:1	67:13,17 68:21 76:23 77:8,10 77:14 83:21,24 144:6,25 145:2 145:4,7 151:25 152:23 159:15 162:25 163:2 174:10 182:5 211:8 <b>hand</b> 8:23 10:10,25 13:22 14:4,10 17:6 19:24 61:8 66:6,24 78:9 86:3 93:23 95:21 99:3 111:16 124:15 127:3 130:8,22 131:7 134:18 148:2 177:10 179:14 181:22 182:25 183:20 185:2,4 215:21 216:18 <b>handed</b> 14:14 205:8 <b>handing</b> 66:17 106:22 111:17 141:12 179:20 <b>handy</b> 139:6 150:7 <b>happy</b> 9:17 <b>hard</b> 15:21
--	--	---	---

<b>haroon</b> 3:7 8:17 <b>haroon.anwar</b> 3:7 <b>hatten</b> 1:13 4:4 5:2,4,7 6:3,7,15 7:3 8:13 9:1,6 10:14,25 11:6 11:9 12:12 13:22 14:10,10 14:11,11 17:6 19:11,24,25 20:9,12 21:12 21:14,15 24:9 26:6 38:8 39:23,24 66:6 66:17 68:11 76:3,3 78:9 86:6 87:24 93:11 95:22,23 96:3,13 100:17 101:14,23 102:3 106:23 106:24 107:14 111:19 121:19 121:24 124:16 124:17 130:9,9 134:19 135:5 136:6 139:5 141:12,13 144:1 158:21 169:23 179:20 199:8 200:25 204:20,20	209:13 212:6 214:24 220:12 220:16 221:4 223:2 224:12 <b>hatten's</b> 5:16 5:18 <b>hazard</b> 86:24 86:24 98:8 103:1,4 105:4 109:22 163:20 163:24 175:14 175:15 176:17 188:25 <b>hazardous</b> 44:13 45:2 47:11,18 61:7 140:1,6 153:17 153:22 154:11 154:17 156:6 159:3,10 169:2 169:19 170:5 170:13 177:21 178:14 189:9 209:21 211:10 211:18 <b>head</b> 70:9 <b>health</b> 22:14 29:20 44:16 45:3 47:11 48:22 60:10 61:7 69:8,15 92:1,5 95:1 108:11 140:2 156:7 159:3,10	169:19 170:5 170:14 178:14 203:22 209:21 211:18 <b>heard</b> 8:9 <b>heavily</b> 74:25 <b>held</b> 8:7 <b>help</b> 107:19 134:24 <b>hereinbefore</b> 221:7 <b>high</b> 45:13 67:15 105:1,9 105:12,15 106:15 109:20 110:4,17 113:6 114:15 115:10 115:12 116:21 117:6,10,13,18 118:1,2 119:1 119:4 120:20 163:17 164:14 164:18 165:19 166:1,6,14,19 167:19,25 168:8,18 176:4 176:21 <b>higher</b> 67:22 74:19 103:12 124:1 126:5,14 126:18,21 129:12 198:25 199:22 218:11 218:14 219:23	<b>highest</b> 137:16 <b>highlighted</b> 206:2,3,7 208:4 <b>highlighting</b> 96:18 <b>highly</b> 171:19 <b>hired</b> 63:22 <b>histories</b> 195:2 <b>history</b> 195:8 195:10,20 <b>hit</b> 65:12 <b>holcomb</b> 30:22 31:5 67:14,18 <b>hold</b> 142:2 <b>holds</b> 193:14 <b>hope</b> 143:23 <b>hopefully</b> 76:6 <b>hour</b> 213:25 214:1 <b>hourly</b> 213:23 <b>hours</b> 213:10 213:20 214:2 <b>housing</b> 67:18 <b>hr</b> 38:15 86:24 88:10 98:8,16 99:3,7 100:4 100:13 110:4 110:20 118:2 119:2 120:20 129:13 135:3 135:16 136:12 136:13 151:15
--	--	---	--

<b>human</b> 44:16 45:3 47:11 61:7 140:1 156:6 159:3,10 169:19 170:5 170:14 178:14 209:21 211:18	19:21 66:14 78:13 96:10 101:16 130:5 134:15 141:9 179:17 204:25	<b>il</b> 221:15 <b>ime</b> 51:13 <b>impact</b> 28:24 29:1 30:10 74:1 75:3 169:20	87:7 96:1 117:10 118:9 123:13 145:9 146:23 150:24 160:16 163:11 176:5 179:3 189:24
<b>humans</b> 44:14 47:18 140:6 153:17,23 154:12,17 169:2 170:13 177:21 189:10 211:10	<b>identified</b> 92:24 140:23 158:2 172:4 190:7 211:16 216:4	<b>impacted</b> 107:25 108:4 <b>imperative</b> 222:7 <b>implication</b> 122:12 <b>imply</b> 65:22 <b>implying</b> 98:4 <b>important</b> 53:5 73:7 127:6 137:21 138:5 208:22 209:1 209:23	<b>included</b> 17:17 18:11 37:11,14 37:17,20,23 48:21 89:8 118:11 119:24 127:1 137:23 146:20 147:3 160:18 162:5 181:21 202:14 219:1
<b>hundred</b> 73:18 74:24 197:12 198:10,21	<b>identifies</b> 20:4 <b>identify</b> 8:14 62:19 70:4,25 <b>identifying</b> 18:21	<b>implying</b> 98:4 <b>important</b> 53:5 73:7 127:6 137:21 138:5 208:22 209:1 209:23	<b>includes</b> 22:16 26:3 69:1 77:8 78:24 87:4,5 87:21 94:20
<b>hundreds</b> 126:15	<b>ii</b> 16:12 <b>iii</b> 5:8,10,11,13 5:14 15:3 18:3 19:17 23:21 24:21 26:7 32:2 33:24 34:23 37:11 41:7,11 43:8 43:19 44:5 48:1 54:6 55:2 57:16 63:10 65:1 75:5 76:4 81:15 97:25 135:20 136:9 136:24 156:10 156:13,17,23 162:10 172:11 187:18 209:14	<b>inaccuracy</b> 35:14 <b>inaccurate</b> 34:12,13,19,22 34:23 <b>inbox</b> 13:11 <b>incidence</b> 7:12 37:12 42:5 86:8 107:19 130:13 133:11 <b>incident</b> 86:1 <b>incidentally</b> 165:14 <b>include</b> 18:8 32:1 78:22	<b>including</b> 9:10 98:5 119:14 121:7 146:17 <b>incorrect</b> 38:19 94:5 144:10 164:2 <b>increase</b> 36:22 40:9 154:25 155:22 169:12 <b>increased</b> 85:8 90:19 103:8 133:11 155:24 168:4 175:2
<b>hydrologist</b> 49:5,7			
<b>hygiene</b> 64:19			
<b>hygienist</b> 51:20			
<b>hypothetical</b> 46:6,25			
<b>hypothetically</b> 45:14			
<b>i</b>			
<b>identical</b> 92:8 216:20 217:14			
<b>identification</b> 10:16 11:3 14:1,7 17:3			



<b>independent</b> 51:14 64:5	<b>influence</b> 28:11	46:9 47:1,2	197:23 198:2
<b>independently</b> 219:16	<b>information</b> 75:10,12	84:24 122:1,25	<b>interested</b> 221:12
<b>indicated</b> 38:12 98:9 99:4	126:23 127:8,9	123:7 124:8,12	<b>internal</b> 108:23
<b>indicates</b> 98:16 99:7 105:7,11	127:16 137:20	143:14 155:21	<b>international</b> 134:9
147:13	138:4,23	<b>inhaled</b> 33:20	<b>interpret</b> 69:4
<b>indices</b> 134:12	144:22 150:23	<b>initially</b> 51:11	93:17 98:14
<b>indirect</b> 138:9 138:17	155:16 156:4	51:15	<b>interpretation</b> 69:9,16
<b>individual</b> 28:10 29:20	157:18 185:23	<b>injury</b> 51:5	<b>interpreted</b> 93:12 94:7
53:2 62:8,9	195:7 196:7	<b>inserted</b> 81:1	191:11
68:6,8 69:5	208:18	<b>instance</b> 117:5	<b>interquartile</b> 40:10
71:9 83:17	<b>informative</b> 19:6 40:5	<b>instances</b> 36:3	<b>interrupt</b> 9:23
90:7 92:9,9	122:9,14,18	36:8	39:11
117:4 124:11	123:5,11,13	<b>instructed</b> 58:13	<b>interruption</b> 136:2
125:21 127:17	<b>informed</b> 143:14 179:13	<b>instructions</b> 58:18 222:1	<b>interval</b> 86:25
146:4 190:24	<b>ingest</b> 71:1	<b>integrate</b> 73:4	87:4,5,8,21
210:8	<b>ingested</b> 61:23	<b>intended</b> 135:20 136:8	88:11 100:9,13
<b>individual's</b> 61:3,15 62:23	<b>ingestion</b> 30:15	207:11	100:14,21
63:14	30:17 36:13,14	<b>intense</b> 88:22	101:1,3,4,5,10
<b>individualized</b> 147:1	38:2 45:21	89:15 90:12,16	103:5,13
<b>individuals</b> 127:8 141:21	46:4,13 47:7,8	91:23 92:4	104:16,22,23
<b>indoor</b> 191:16	63:14 122:22	154:6	104:24 105:5
<b>industrial</b> 7:12 51:20,20 64:18	123:6,14 124:4	<b>intensity</b> 89:19	105:20,21,24
193:13	124:7 146:6	189:4	110:6,21,25
	<b>ingestions</b> 28:25	<b>intent</b> 21:24	114:20,24
	<b>inhalation</b> 36:17	51:12 207:11	116:15,18,19
	<b>inhalational</b> 30:15 37:25	<b>interchangea...</b> 24:8	116:22 118:3,9
	38:3,4,9,12	<b>interchangea...</b> 23:6 24:5	118:20 119:3
	40:6,12 45:17	<b>interest</b> 41:13	119:12 120:2
		171:13 175:7	

120:14,21 121:5 129:14 136:14,17 137:4,6,13,17 150:14 151:16 151:22 159:24 160:1 163:18 164:3,19 165:12,16 166:2,20 167:12 168:1 168:11,22 176:17 <b>intervals</b> 91:4 98:10,12 99:5 111:3,5,8 118:12 119:10 119:11,23 121:3,4 164:10 <b>introduced</b> 5:2 6:3 <b>investigate</b> 54:8 170:21 <b>investigation</b> 138:6 156:3 <b>invoices</b> 11:15 11:18,23 12:2 12:3,9 <b>involved</b> 32:22 <b>involves</b> 125:7 171:7 <b>iris</b> 193:8 <b>irrelevant</b> 146:18	<b>isolation</b> 15:22 52:23 199:14 <b>issue</b> 25:10 33:1 36:12,22 42:21 81:7 89:15 178:2 199:11,18,22 209:17 210:7,8 211:12 <b>italian</b> 38:11 <b>italy</b> 6:13 <b>iv</b> 74:22 <b>j</b> <b>january</b> 76:10 76:24 185:14 <b>jenna</b> 2:15 <b>jfb</b> 2:15 <b>john</b> 2:6 <b>johnson</b> 32:1 <b>jones</b> 2:3 <b>journal</b> 108:21 <b>jt</b> 213:3,7 <b>jtmalone</b> 2:6 <b>judge</b> 9:15 <b>judgment</b> 46:17 <b>julie</b> 3:10 8:3 42:16 57:1 210:14 <b>july</b> 1:20 4:2 8:4 159:19 221:17 223:2 224:5	<b>june</b> 10:21 11:10 20:6 185:13,20 205:14 <b>jury</b> 9:16 <b>justice</b> 3:4 160:9 <b>k</b> <b>kansas</b> 2:4 <b>kantor</b> 104:6 <b>keep</b> 55:19,24 56:15 80:13 <b>keller</b> 2:17 <b>kellerpostma...</b> 2:19 <b>kelly</b> 5:23 20:5 26:11 32:9 <b>key</b> 30:11 109:4 109:9 206:7 <b>kidney</b> 16:15 141:23 <b>kind</b> 9:11 24:7 26:15 29:13 30:10 49:22 54:14 68:7 108:23 172:6 172:22 202:18 207:3 <b>knew</b> 13:13,15 13:18 <b>know</b> 9:9 11:11 11:17,19 12:1 12:3 13:6,10	14:13 17:14 18:23 22:3,7 26:13,14,17 27:7,25 31:16 35:19 36:5 39:11 47:10,20 47:23 49:21 52:4,8 54:14 55:17 56:7 57:5,12 62:1 62:17 68:6,12 72:5 75:13,15 80:5 84:7 91:11,12 93:20 97:10,19,22 101:7 106:13 107:14 110:1 115:23 116:2 117:23 122:12 133:1 135:6 144:9 146:9 148:22 150:25 155:14 156:18 159:13 160:10 160:24 161:8 161:12 162:5 162:20 165:2 166:17 179:14 181:2,3,17 182:19 183:12 184:10 186:16 193:14 194:15 194:19 196:7 200:11 201:16
---	--	--	---

203:14 205:10 206:18 211:21 213:16,21 <b>knowledge</b> 43:5 56:11 78:1 80:17 83:6 185:10 199:3,6 208:6 208:11	<b>laramore's</b> 174:6 178:8 195:19,24 196:3 <b>large</b> 42:19,25 43:1 45:7,9 62:11 65:20 <b>largely</b> 216:19 <b>larger</b> 15:23 <b>late</b> 32:15 159:23 <b>latency</b> 111:24 111:25 112:11 112:13,16,19 112:25 113:3 114:19 115:5 115:15 176:6 <b>leads</b> 79:10 <b>leave</b> 76:14 <b>led</b> 114:8 <b>left</b> 61:8 68:20 99:3 121:23 127:3 137:9 181:22 182:14 182:25 183:20 185:2,4 187:5 187:8 215:21 216:4,18 <b>lejeune</b> 1:5 7:6 7:10,13 8:9 22:2 25:5,14 25:18,23 27:14 31:6,9 37:5,7 48:9 53:10	69:21 76:10 77:16 85:10,18 86:14 88:1 89:21,24 90:18 94:3 99:16,25 107:18 108:5 108:16 116:8 124:13,14 144:2 148:19 149:8 150:13 154:15,20 155:18 157:5 160:9 165:7 185:12 186:2 196:5 199:12 199:14 200:7,8 209:25 210:1,2 219:12,23 223:1 224:1 <b>lekine</b> 57:1 <b>length</b> 92:20 133:5 <b>level</b> 45:22 51:21 67:15,21 127:9 132:6 140:22 142:21 143:5 154:11 154:24 155:4,6 155:10,11 156:6 157:14 159:2,9 169:25 170:10,19 171:19,20 172:1,6 209:20	215:9 <b>levels</b> 36:21 44:13 45:1 47:11,17 53:9 61:7 66:3 67:12 68:3 69:21 94:4 108:17 138:25 140:1,5 148:19 153:16,22 154:16 169:1 169:11,13,18 169:20 170:4,9 170:9,12 171:8 172:11,20,20 173:5 177:20 178:14 189:9 193:17 201:6 211:9,17 215:13 216:4 <b>life</b> 172:19,24 173:5,7 <b>lifetime</b> 197:12 <b>likely</b> 12:15 22:16 55:23,25 74:15 108:5 192:20 208:2 <b>likewise</b> 9:23 200:4 <b>limitations</b> 107:3,8,10,17 211:2,4 <b>limited</b> 88:21 132:4 207:6
<b>l</b>			
<b>l</b> 38:25,25,25 <b>label</b> 162:4 <b>labeling</b> 170:23 <b>lack</b> 48:12,17 98:15 99:4,6 <b>lacked</b> 98:9 126:22 191:16 <b>lacking</b> 137:21 138:5 <b>landscape</b> 22:18 <b>language</b> 12:16 47:17,19,24 85:12 89:11 100:22 101:13 128:24 133:19 141:5 149:11 <b>laramore</b> 5:13 5:17 14:19,21 14:25 15:6 174:9,21 175:8 177:19			

<b>limits</b> 131:9	<b>liter</b> 27:17 33:2	143:24 154:15	215:18 216:16
<b>line</b> 102:24	33:5 35:8 59:8	199:15	<b>lot</b> 43:6 68:12
103:18 104:2	63:2 79:17	<b>littleton</b> 1:20	74:21 172:7
141:19,19	123:18 146:2	8:8	181:17 197:21
203:17 223:3	148:8,9 215:20	<b>lived</b> 76:19,23	<b>low</b> 40:6 88:6
<b>links</b> 171:16	216:5,17 217:6	162:14 185:19	116:14 150:12
<b>liquid</b> 52:1	217:11,13,15	186:1,9 199:1	150:20,22
<b>lisa</b> 57:8	217:18,21,22	<b>llc</b> 2:9,17	151:8,15 152:3
<b>list</b> 5:16,19	218:1	<b>location</b> 53:4	152:8,14 153:2
17:12,14 18:21	<b>literature</b> 22:5	68:21 77:6	153:5 165:14
19:12 20:2	43:14 44:2	93:25	176:4 218:1
29:2 35:22	45:1,3 61:14	<b>locations</b> 31:6	<b>lower</b> 61:9
55:3 57:3,11	62:4,6,11,21	53:1 97:6,24	67:22 100:13
102:25 114:23	64:21 65:1,3,4	<b>long</b> 9:21	105:12,17
128:8 137:3	65:15 173:1	188:19 213:8	106:8 113:20
139:5 147:10	194:12 206:9	<b>longer</b> 80:10	114:1,1,9,10
157:21 159:18	<b>liters</b> 95:13	<b>look</b> 26:18 27:1	129:2,18
174:1 185:16	<b>litigation</b> 1:6	38:20 39:1	148:18 149:9
190:7,18	6:7 8:9 9:10	80:16 91:8	155:10 185:7
<b>listed</b> 20:13	16:25 26:21	94:19 104:2	187:10,24
21:12 35:21	27:4 49:18	113:15 114:17	188:2
125:21,24	50:23 51:5,12	134:3 145:8	<b>lunch</b> 121:15
137:6 144:8,16	51:15 71:16	146:4 149:22	<b>lung</b> 6:12
158:11 160:18	100:18 101:9	154:5 155:20	127:10
161:22 163:20	102:5,13	182:12 188:17	<b>lynge</b> 6:9 38:5
173:25 178:9	141:15 142:7	191:20 205:3	130:10,12
190:17,20,22	156:21 157:1	216:8	133:10,16
204:10 217:20	203:7 205:24	<b>looked</b> 42:11	<b>m</b>
217:23 219:1	207:15 208:23	54:10,22 104:6	<b>m.d.</b> 1:13 4:4
<b>listing</b> 147:13	209:6 213:15	148:25 171:25	5:4 8:13 9:1
<b>lists</b> 19:15	213:24 223:1	<b>looking</b> 24:10	102:3 220:16
35:25 139:13	224:1	41:18 52:22	221:4 223:2
174:2	<b>little</b> 26:6 27:2	77:2,20 150:11	224:12
	58:19 73:12,13	175:8 204:12	

<b>m.p.h.</b> 102:3 <b>made</b> 35:3 36:1 36:5 47:25 54:23 57:15 58:13 93:15 103:17 130:16 130:25 131:25 162:12,16 180:1 219:6 222:4 <b>magnitude</b> 24:1,14 25:1 45:4 98:17 99:8 <b>main</b> 2:3 9:11 <b>major</b> 91:12 107:7,16 194:9 220:7 <b>majority</b> 51:9 59:5,17 <b>make</b> 22:15 54:23 57:19 58:13 69:16 90:5,8 94:18 147:6,25 148:1 161:23 199:19 210:5 222:3 224:6 <b>makes</b> 127:6 <b>makeup</b> 92:9 <b>making</b> 80:4 92:7 <b>malone</b> 2:6 213:5,6	<b>malpractice</b> 206:17 207:7 <b>manner</b> 82:2 208:17 <b>manual</b> 59:13 60:24 113:18 113:21 114:2 <b>manuals</b> 60:24 <b>manuscript</b> 133:20 192:7 <b>march</b> 76:10 159:20 160:3 <b>marine</b> 7:10,13 89:23 90:15,17 95:19 148:25 149:2 150:2 175:1 186:13 <b>marines</b> 7:5,8 7:12 37:14 86:16 92:3,5 116:8 165:6 187:2 219:22 219:24 <b>marked</b> 5:2 6:3 7:2 10:15 11:2 13:25 14:7,16 17:2 19:20 66:13 78:12 86:4 95:22 96:9 101:15 106:23 111:18 124:15 125:4 130:4,8 134:14 134:19 141:8	141:13 179:16 204:24 <b>marker</b> 26:1 130:1 <b>mass</b> 27:18 33:15 63:5 72:8,13,16,19 72:22 73:3 <b>massachusetts</b> 7:16 <b>match</b> 184:17 <b>material</b> 19:18 193:2,4 <b>materials</b> 5:16 5:18 17:12,13 18:20 19:12 20:1 35:22,25 51:1 57:3,10 66:11 139:4 157:20 174:1 190:7,18,21 212:18 <b>math</b> 197:4 <b>mathematical</b> 35:3 <b>matter</b> 118:12 199:8 <b>matters</b> 171:10 221:5 <b>mccarthy</b> 198:25 <b>mccarthy's</b> 199:4	<b>mean</b> 32:25 34:18 35:10 46:1,3 48:11 51:24 65:17 70:15 73:23 80:18 81:25 83:8 88:24 93:14 96:22 97:5,20 98:2 126:9 147:19 155:6 172:15 190:12 196:14 207:1 <b>meaningful</b> 101:2 <b>means</b> 9:13 34:19 <b>meant</b> 134:22 <b>measurable</b> 169:20 <b>measure</b> 37:2 42:12 43:15 85:13,19 92:24 127:24 128:10 128:18 130:1 150:3 154:21 155:4,19,24 157:15 164:2 166:23 168:4 168:14 170:2 172:5 174:18 175:6 188:12 188:12 209:22
---	--	---	---

<b>measured</b> 25:15 33:1 125:7,18 171:19,19 172:18,20	115:19 116:17 116:25 117:13 118:14,20 120:7,13 135:17 136:12 152:15,16,17 164:23 165:10 167:9,11 175:9 175:16,23 176:11 177:3 177:14	<b>meter</b> 38:15 135:2,12,13,13 <b>meters</b> 33:19 <b>method</b> 138:9 138:17 <b>methodologies</b> 210:20 <b>methodology</b> 26:7 62:15 63:9,12 81:15 96:25 97:16 146:13,17,19 <b>methods</b> 81:12 130:18 132:7 132:15 137:24 182:3,19 191:4 <b>metric</b> 30:11 41:23 42:1 43:17 82:1 91:1 94:14 175:3 <b>metrics</b> 27:20 30:20 44:7 55:5 84:21 156:1 189:10 189:18 <b>miceli</b> 2:12 <b>microgram</b> 33:5 79:17 215:20 216:5 216:17 217:6 217:10,15,18 217:21,22,25	<b>micrograms</b> 27:17,18 33:2 33:19 35:8 38:14 59:8,9 59:10,12,23 63:2,15 72:9 72:15,24 95:13 112:3,6 113:16 123:18 135:2 135:12,12,13 146:2 148:8,9 218:16 <b>mid</b> 159:23 <b>middle</b> 116:12 137:12 138:1 <b>midway</b> 67:6 127:3,4 <b>milberg</b> 2:8 <b>milberg.com</b> 2:11 <b>military</b> 20:13 20:16,18,19,20 20:24 21:1,5 60:24 85:8 86:22 88:22 89:7,16 90:6 90:12 91:9,17 92:12 97:22,23 97:23 154:3 174:15 <b>milligrams</b> 111:24,25 112:3,6 113:9 113:10
<b>measurements</b> 130:16,24 131:16,25 132:5 155:17 191:3	<b>meet</b> 27:9 46:14 <b>meetings</b> 213:3 <b>melanoma</b> 171:15,16,22 171:22 <b>members</b> 127:17 <b>memories</b> 53:12 <b>memory</b> 38:21 53:19 <b>men</b> 137:8 <b>mention</b> 151:7 151:13 <b>mentioned</b> 16:11 36:1 37:21 41:2 140:21 178:13 <b>met</b> 9:6 45:22 61:7 211:17,17 212:9,23		
<b>measures</b> 41:15 41:19 43:23,24 111:12 178:16			
<b>mechanism</b> 108:14			
<b>medical</b> 16:5,8 23:3 24:23 29:17 50:7 51:14 52:4 63:7,25 69:24 71:11 73:6 75:17 201:2 206:5,6,9,17 207:7 208:5,6 208:11,16			
<b>medications</b> 10:3 73:25			
<b>medicine</b> 205:4 205:16,20			
<b>medium</b> 38:13 86:19,22 88:6 95:8,11 100:4 100:12 105:9 105:12 110:24			

<b>million</b> 125:8 125:16,22 126:1,11,13,17 <b>mind</b> 146:14 <b>mine</b> 54:13 <b>minimal</b> 74:20 <b>minimis</b> 44:20 45:11,20 46:10 46:17 47:6 170:22 178:1 201:18,24 <b>minimum</b> 85:17 124:5 <b>minute</b> 79:1 151:24 211:22 <b>minutes</b> 136:7 167:5 190:15 <b>misclassificat...</b> 108:1 112:22 <b>misinformed</b> 144:9 <b>misleading</b> 206:5 <b>missouri</b> 2:4 <b>model</b> 34:15,15 34:18,20 106:4 106:4,7,10 113:16 217:20 217:22 218:17 <b>modeled</b> 19:7 32:25 48:16 96:22 97:5 148:18,23 149:22,24	<b>modeling</b> 30:21 31:23 32:6,18 32:23,24 34:9 34:12 35:16,20 45:18 48:6,15 48:19,25 49:1 49:2,8,13,14,16 49:23 50:1,10 50:12,13,23 51:21,22 52:17 52:20,21 64:6 64:7 66:1,21 67:7,14 68:5 69:20 77:8 219:7,11,11,14 219:15 <b>models</b> 49:11 51:3,4,17 68:2 106:3,12 114:12 201:1,5 201:12,14 217:12,13 <b>modified</b> 78:5 <b>modify</b> 17:8 <b>modifying</b> 80:6 <b>moment</b> 16:11 26:25 63:1 135:22 214:15 <b>monday</b> 4:2 <b>money</b> 213:14 <b>monographs</b> 193:7 <b>month</b> 18:17 27:17 35:8	63:2 66:5 67:20 68:6,25 69:1,3,6 79:17 82:17,18,20 83:10,11 95:13 123:18 146:2 147:21 148:9 148:10,22 215:20 216:5 216:17 217:6 217:11,13,15 217:19,21,22 218:1 <b>monthly</b> 32:25 48:7 66:5 67:16,19 82:19 94:4 96:22 97:5 148:7 <b>months</b> 59:8 65:17,18 81:21 82:16 85:23 147:20 154:15 <b>morbidity</b> 7:8 37:18 106:19 106:25 <b>morgan</b> 2:9 <b>morning</b> 8:1 20:2 <b>mortality</b> 7:5 37:15 42:8 95:19 96:15 <b>motivation</b> 32:21	<b>mountain</b> 1:21 8:6 <b>move</b> 121:25 <b>moving</b> 152:2 152:22 153:1 <b>mp</b> 106:3,7,9 113:16 <b>mph</b> 1:13 4:4 9:1 48:20 221:4 223:2 224:12 <b>mt3</b> 217:12,22 <b>mt3dms</b> 106:4 <b>multiple</b> 164:9 171:25 203:1,1 211:16 <b>multiplied</b> 82:17 182:5 <b>multiply</b> 112:3
<b>n</b>			
<b>n</b> 2:1 3:1 4:1 99:22 <b>naive</b> 75:1 <b>name</b> 8:3 9:7 38:22 213:4 223:1 224:1 <b>names</b> 51:19,19 <b>narrow</b> 100:21 101:2 <b>native</b> 55:14 <b>naturally</b> 16:1 <b>nature</b> 114:7			

<b>navy</b> 7:5,12 86:16 175:1 <b>near</b> 128:23 129:3 133:8 199:2 <b>necessarily</b> 29:11,15 33:11 34:18 73:22 92:13 132:11 146:23 197:20 207:1 <b>necessary</b> 64:7 222:3 <b>need</b> 9:14 35:12 79:1 97:9 131:23 135:21 180:6 184:12 <b>neither</b> 221:10 221:12 <b>never</b> 25:21 26:4 27:6 95:3 108:21,25 202:9 204:13 <b>new</b> 3:4 64:25 <b>nine</b> 133:13 147:22 148:10 <b>nocca</b> 127:9 <b>non</b> 37:6 78:22 87:13 103:9 104:13 164:4 213:11 <b>nonsmoker</b> 197:11,14,17	<b>nonsmoking</b> 197:22 <b>nordic</b> 6:9 7:19 130:13,17,25 132:1 133:4 134:5 <b>north</b> 1:2 2:10 2:14 3:5 6:13 8:11 199:2 <b>notary</b> 224:19 <b>note</b> 86:19 88:5 88:20 103:16 <b>noted</b> 191:10 <b>notes</b> 55:7 82:21 <b>notice</b> 5:3,6 10:20 11:8 <b>november</b> 144:2,2,8 147:21 159:20 159:20,25 160:3 <b>null</b> 103:6 108:6 128:23 129:3 <b>number</b> 35:2,4 35:7,11,11 42:20,25 43:1 49:21 54:16,16 70:15,16 71:3 94:15 99:15,24 106:8 114:1 115:15 121:11 126:8 192:10	201:16 203:5 213:21 216:23 216:25 217:25 <b>numbered</b> 79:7 115:24 <b>numbers</b> 46:2 54:24 66:23 78:2,8 79:14 79:14,15,23,23 80:16 82:10 99:5 113:12 114:10 125:21 126:9 132:5 152:20,21 182:16,17,24 183:1,21 184:5 184:16,17,21 184:23 185:2,3 185:6 193:3,8 216:19,20 217:14 <b>numerical</b> 97:2 100:19 <b>nutritional</b> 28:24  <b>o</b>  <b>o</b> 38:25 <b>oath</b> 9:13 224:6 <b>object</b> 62:24 88:15 103:15 119:25 121:9 142:9 157:17	<b>objection</b> 11:25 21:16 29:21 31:11 32:19 34:6,14,24 42:23 46:19 53:14,24 55:22 57:21 74:9 75:14 87:11 89:5,17,25 90:13,20 92:6 92:16 93:13 97:17 98:11,19 103:17 107:9 108:12 109:6 117:8 119:17 126:7 128:15 136:19,25 146:15 154:18 155:1 157:7 167:1 170:15 184:7,15 186:19 190:25 191:23 192:14 194:10 195:3 196:25 197:18 198:11,18 199:24 203:20 207:8 208:24 209:18 211:13 215:24 218:3 218:13,23 219:9 220:1,6 <b>objections</b> 5:6 11:7
---	--	--	--



<b>objective</b> 208:17	17:6,21 18:1 18:15,19 19:11	<b>oncologist</b> 204:18,19	212:11 218:18
<b>observed</b> 133:11	19:24 20:8,12 21:21 27:8	<b>ones</b> 11:21 22:19 31:15,20	<b>opinions</b> 15:15 15:17,20 16:19
<b>obtained</b> 163:5	36:10 39:4 40:11,16,19	31:22 38:1,1 47:12 61:10	16:22,23,25 17:16 19:10,16
<b>occasional</b> 34:1	43:6 58:22 66:23 74:11	143:24 146:1 212:22	43:5 50:22 143:10 158:9
<b>occasions</b> 49:22	76:8 77:13 79:5 80:15,23	<b>onwards</b> 76:24 <b>opine</b> 25:4	173:21 178:7 190:11,14
<b>occupational</b> 7:17 20:23 21:4	81:9 83:1,20 84:11 85:5,6	44:18 140:4,9 153:15 170:3	206:15 212:12 212:13,15
<b>occupations</b> 127:11	100:3 102:1,25 104:25 105:25	177:19,24 189:8,20	214:16 217:1 <b>opposed</b> 33:15
<b>occurred</b> 21:6	113:19 114:13 115:8 125:23	<b>opined</b> 44:12 157:4 168:25	45:12 47:5 184:1 201:23
<b>october</b> 85:18 88:2 188:8,10	125:25 129:1 130:21 131:3	169:5 <b>opining</b> 170:12	<b>options</b> 69:9,16 <b>oral</b> 47:1
<b>odd</b> 184:5	132:9 133:21 136:11 137:25	<b>opinion</b> 18:7 25:7,16,22,25	<b>order</b> 10:12 <b>organic</b> 52:14
<b>odds</b> 104:13 112:15 114:14 114:18 116:7	139:23 141:7 143:10,25	26:4 36:8 61:2 61:5,14 62:22	66:3 84:22 151:1
116:25 117:3 127:20 129:7 129:19 163:25	144:24 149:14 158:12 159:11	94:25 95:4 100:23 141:3	<b>organics</b> 26:3 <b>oriented</b> 51:15
165:6,11,15 166:19 167:25 175:12	161:13 162:8 162:13 181:5,9	141:22,24 142:1,2,7,11,13	202:15,22,23 <b>original</b> 32:22
<b>offense</b> 48:12	182:9 213:6 216:16,25	142:15,17,19 142:24 143:2	180:1 181:1,25 182:23 183:9
<b>offering</b> 201:22	218:19 219:3 <b>old</b> 55:19 186:9	149:16 153:20 154:10,14,23	184:23 222:8 <b>originally</b> 51:7
<b>office</b> 170:18	<b>omits</b> 78:21 <b>omitted</b> 43:19	155:3 157:10 169:10 174:25	78:2 <b>ortiz</b> 3:6 4:5
<b>oftentimes</b> 70:9	43:21 117:6 136:23 137:2	181:13 201:22 208:5 209:16	8:17,17 9:5,7 10:10,18 11:5
<b>oh</b> 131:20			14:3,9,17 15:1
<b>oil</b> 6:12			
<b>okay</b> 10:25 11:13,13,22 12:12 13:2,17			

17:5 19:23 22:6 29:22 31:12 39:14,22 53:15 58:1,11 58:22,24 66:16 75:19 76:2 78:15 90:1 96:2,8,12 101:18,21 103:19,20 109:7 110:11 110:15 119:18 121:12,18 130:7 134:17 135:23 136:5 141:11 158:12 158:20 179:19 183:7,18 184:8 197:2 199:25 200:15,24 203:9,11 204:22 205:2 211:21 212:5 214:19 215:24 216:11 218:3 218:13,23 219:9 220:1,6 220:13 <b>outcome</b> 22:4 41:14,16 45:5 171:13 175:6 197:23 198:1 202:24 204:7,8 204:9,11,15	<b>outcomes</b> 86:13 87:25 202:14 203:24 <b>outside</b> 13:8 48:24 49:18 71:15,19 95:6 <b>overall</b> 122:15 133:16 134:3 <b>overestimating</b> 108:7 <b>own</b> 34:2 36:9 43:7 48:15,25 49:12 84:15 94:10 182:18 183:16 211:2  <b>p</b> <b>p</b> 2:1,1 3:1,1,1 <b>p.m.</b> 121:17 136:1,4 158:19 200:23 212:1,4 220:17,22 <b>p.o.</b> 2:13 <b>pa</b> 2:13 <b>pack</b> 198:8 <b>packyear</b> 195:10,20 <b>page</b> 4:5,6 5:19 24:12 38:7,8 48:3 60:3 67:2 67:5,6 68:10 68:18 79:6,7 79:12 81:11 86:10,18 87:24	88:19 91:8 93:19 94:19 98:24 99:21 100:6,12 102:2 102:20 103:18 104:3 107:14 107:15,23 108:3 109:25 110:3,7,8,9 112:12 114:17 115:22,24,25 117:22 118:17 120:9 122:1 125:10 127:2 127:18 129:18 130:21 131:10 132:24 133:21 135:5,6,7 137:25 138:2 139:8,9,25 141:15 148:16 150:9,10 152:6 153:5 159:1 163:6,23 165:1 165:22,24 166:16 167:22 176:15 177:9 180:14,25 188:4 203:13 223:3 <b>pages</b> 5:8,10,11 5:13,14,17,23 6:5,10,13,17 39:24 40:19	<b>paper</b> 110:7 130:19 134:7 134:23 <b>papers</b> 68:12 <b>paragraph</b> 39:25 40:12,20 88:19 93:24,24 109:15 127:3 130:23 131:4,7 131:15 138:1 138:23 149:13 159:1 <b>parentheses</b> 99:22 125:12 125:16 <b>parse</b> 154:2 <b>part</b> 33:5 34:1 47:21 55:18 62:13 66:20 98:2 108:13 109:4,9 125:7 125:25 126:11 132:17 202:7 210:25 <b>partial</b> 68:5 81:21 82:15 <b>participants</b> 108:16 <b>participation</b> 108:11 <b>particular</b> 29:24 37:4 <b>particularly</b> 30:18 169:21
---	--	--	--

<b>parties</b> 221:11	79:18 84:23	165:8 219:25	162:19 163:11
<b>parts</b> 33:18	105:25 106:3	220:8	185:20 186:1,4
40:10 125:16	106:16 109:15	<b>people</b> 51:19	187:2,11 188:6
125:21 126:1,6	109:20 110:5	90:5 92:7	188:22 189:3,7
126:10,12,13	110:18 111:24	154:20 171:2	<b>periods</b> 159:16
126:14,17,19	112:10 113:7,8	172:17 173:6	<b>persistent</b>
155:22	113:14,15	192:18 193:11	160:20
<b>pass</b> 214:22	114:15 115:13	209:25	<b>person</b> 28:12
<b>passively</b> 65:11	123:22 129:6,7	<b>percent</b> 134:11	67:21 73:18,19
<b>past</b> 20:21 21:2	130:16 133:17	182:4,5 194:22	74:4,5,16,16
58:21	140:7,12,24	<b>percentage</b>	75:1 97:23
<b>pat</b> 213:2	141:4,22 142:8	194:16 219:24	170:4
<b>patient</b> 22:17	142:14 145:19	<b>percentile</b>	<b>person's</b> 72:20
22:20 23:16	145:19,23	111:23	72:23 73:4,7,8
24:2,15 28:11	151:24 153:10	<b>perchloroeth...</b>	<b>personal</b> 28:15
28:12,18,21	160:19 164:22	25:11	51:4
45:8,10 49:24	165:6,19 166:1	<b>perform</b> 23:7	<b>personnel</b> 7:5
50:5 51:7,11	169:3,7 175:15	23:10,20 48:25	7:12 85:8
54:15 62:8	175:22 177:22	49:12 51:13	86:16,22 88:9
63:21 73:24	189:22 217:7	65:7,7 82:5,14	88:21,22 89:8
75:2	217:11,13	82:14 138:18	89:8,11,14,16
<b>patient's</b> 50:2,3	218:2,7,10	<b>performed</b>	89:21,23 90:6
<b>patients</b> 16:6	<b>pdf</b> 55:12 56:19	31:23 34:2	90:6,11,12,16
20:22 54:16	162:12	36:9 64:21	90:17 91:9,10
59:17 75:17	<b>pdfs</b> 56:13	81:21 147:10	91:15,17 92:4
91:16	<b>peak</b> 29:13	147:13 148:4	97:22 148:25
<b>patrick</b> 2:11	73:21 74:14,19	148:14 177:1	149:3 174:15
<b>pattern</b> 134:11	<b>peer</b> 108:21,25	202:13 213:19	175:1
<b>pauline</b> 1:17	109:3,13	215:22 219:8	<b>persons</b> 6:9
8:20 221:2	206:17 207:7	<b>performing</b>	<b>perspective</b>
<b>pce</b> 25:12 27:13	<b>pending</b> 9:21	109:14	171:18 210:12
40:22 41:18	<b>pendleton</b>	<b>period</b> 145:20	<b>pertaining</b> 1:16
52:5,18 67:12	86:15 88:2	149:5,20,23,25	206:16
71:17,19 79:16	108:5 116:9	160:9,20,22	

<b>peter</b> 210:15	<b>placement</b> 76:22	<b>play</b> 53:6	152:21,24
<b>phase</b> 5:8,10,11	<b>plaintiff</b> 27:14	<b>please</b> 8:14,23	159:15 162:25
5:13,14 15:3	27:19 31:25	9:22 98:25	163:2 164:18
16:12 18:3	36:11 40:18	102:20,21	173:15 174:10
19:17 23:21	43:12 44:12,20	107:14 110:1	182:5 194:3
24:21 26:7	53:2 69:2	117:23 127:2	204:10 206:12
32:2 33:24	81:19 83:17,21	132:25 133:21	211:8
34:23 37:11	97:12 117:4	135:6 137:25	<b>poisoning</b> 71:6
41:7,11 43:8	146:20,24	139:25 141:15	<b>policy</b> 6:19
43:19 44:5	147:2 157:25	143:23 148:17	205:12
48:1 50:22	174:2 208:19	150:9 151:4	<b>pollution</b> 33:17
54:6 55:2	209:15,19	152:7 153:5	38:11,16
57:15 63:10	210:7 212:13	157:21 158:22	<b>population</b>
65:1 75:5 76:4	<b>plaintiff's</b>	161:15 163:7	7:18 88:20
81:15 97:25	43:12 59:4	165:1,2,22	91:7 98:22
135:20 136:9	147:1	166:17 167:22	107:20 171:5
136:24 156:10	<b>plaintiffs</b> 2:2	176:16 180:16	188:14
156:13,17,23	5:16 16:3,7,9	181:1,19	<b>populations</b>
162:10 172:11	22:2 25:5	203:13 222:3,5	90:4 92:7,10
187:18 209:14	26:12,21 27:3	<b>plg</b> 8:16 11:16	92:11,12
<b>phillips</b> 2:8	36:21 43:25	<b>point</b> 18:9	<b>portion</b> 24:10
<b>phonetic</b> 57:1	45:21 54:17,20	30:22 31:4	69:6 72:6 83:9
<b>physician</b>	56:17 62:2	32:11 34:5	83:23 89:18
22:13,13 51:11	75:7,9 78:22	36:4 47:4,9	109:9 117:11
63:8,22 198:25	78:25 94:15	48:8 66:1	145:21 146:18
207:17,21	124:13,14	67:13,17 68:21	162:1 181:14
<b>physicians</b> 6:18	157:1,3 195:2	76:24 77:8,10	206:6
205:5,14,23	199:10,21	77:14 83:22,24	<b>positive</b> 44:7
206:16,25	200:6 211:16	91:6 98:21	92:15,18
207:12 208:14	<b>plant</b> 6:12	103:4,12	<b>possibility</b>
209:5,10	67:18	104:15 105:11	112:20
<b>pick</b> 91:14	<b>plausible</b> 22:16	127:23 134:9	<b>possible</b> 21:7
<b>place</b> 145:17	22:19 25:1	144:6,25 145:2	22:14,17,18,19
221:7 224:5		145:4,7 151:25	23:3 25:17,19

29:19 46:5 52:17 91:18 95:1 210:11 211:7,15 <b>postman</b> 2:17 <b>potential</b> 23:2 25:14 127:7 <b>potentially</b> 7:9 19:6 70:17 108:6 126:5 156:2 <b>pound</b> 74:16,16 75:1 <b>pounds</b> 73:18 73:19 74:4,5 74:24 <b>power</b> 6:12 <b>ppm</b> 125:7,16 125:19 126:4 127:21 129:9 129:20 <b>practicality</b> 45:20 <b>practice</b> 23:9 23:10 24:3,15 29:17 49:12 51:8 55:23 63:7,24 69:24 71:11 80:13 201:2 219:13 <b>practicing</b> 22:13 48:18 <b>precise</b> 24:6 89:1,12	<b>precision</b> 98:9 98:15 99:4,6 <b>preexisting</b> 112:23 <b>prefer</b> 191:19 192:7 <b>preliminary</b> 80:5 <b>preparation</b> 11:18,23 <b>prepare</b> 212:7 <b>prepared</b> 12:2 15:9 18:6 64:22 <b>preparing</b> 12:3 18:2,3 65:1,15 <b>preprint</b> 17:15 18:1,25 19:2 190:20 <b>present</b> 2:2 3:3 3:9 21:1 102:17 213:1 213:12 <b>presentation</b> 23:16 <b>presented</b> 32:8 <b>presenting</b> 24:3 24:15 <b>presumably</b> 220:9 <b>presume</b> 107:6 183:15 <b>presumed</b> 46:9 47:2	<b>pretty</b> 44:10 92:11 <b>prevent</b> 10:4 <b>preview</b> 26:19 <b>previously</b> 7:2 86:4 95:22 106:23 111:17 <b>primarily</b> 30:16 37:25 38:1,3 40:6 45:17 65:4 155:21 209:24 <b>primary</b> 128:17,17 <b>principles</b> 207:25 <b>printed</b> 24:7 55:12 56:13,14 <b>prior</b> 65:2,8 86:4 92:20 93:8 95:23 100:18 101:9 106:24 111:18 124:16 141:14 176:21 205:10 221:3 <b>probably</b> 24:5 35:21 50:11 58:20 76:5 88:25 134:24 212:19,21 213:19 <b>problem</b> 11:13 110:16	<b>procedure</b> 1:15 58:2 <b>proceed</b> 10:2 <b>process</b> 108:24 206:7 211:1 <b>produced</b> 12:14 59:16 82:25 94:21 162:21 <b>production</b> 5:4 <b>professional</b> 1:18 221:2,16 <b>professionally</b> 27:7 <b>profile</b> 40:21 139:21 <b>prompt</b> 156:2 <b>promulgated</b> 209:9 <b>pronounce</b> 38:24 <b>properties</b> 28:9 28:12,13 29:9 <b>proportion</b> 69:1 82:16,17 83:8 147:20 150:25 <b>proportional</b> 68:8 69:3 148:7 162:23 <b>proportions</b> 138:18 182:7 <b>protected</b> 21:19 57:24
--	--	--	---

<p><b>protective</b> 28:15 69:8,15 <b>protects</b> 58:2 <b>provide</b> 21:25 62:25 206:4 <b>provided</b> 20:15 58:9 80:5 82:11 139:16 139:22 161:4 161:10 183:15 184:22 185:23 217:5 <b>provides</b> 67:15 <b>providing</b> 206:19 207:4 <b>proximity</b> 6:12 <b>proxy</b> 94:3 187:12,25 <b>public</b> 50:15 60:10 203:22 219:4 224:19 <b>publish</b> 66:4 203:1 <b>published</b> 17:11 18:7,10 45:1,3 60:12 62:9 83:16 93:4 108:22 109:12 143:13 202:10,25 203:22,25 204:7,14 <b>pubmed</b> 65:5 65:10</p>	<p><b>pull</b> 40:25 161:13 215:3 <b>purpose</b> 15:16 205:25 <b>purposes</b> 36:7 54:5 <b>pursuant</b> 1:14 <b>put</b> 13:21 22:2 40:11 106:15 113:6 115:8,18 117:17 128:2 130:3 139:3 153:1 187:24 188:2 197:16 220:18 <b>pwallwace</b> 2:11</p> <tr> <td data-bbox="537 1050 857 1102" style="text-align: center;"><b>q</b></td><td data-bbox="537 1102 857 1900"> <p><b>qualitative</b> 41:23 45:18,25 45:25 46:16 172:14,15 201:19 <b>quantitative</b> 201:22 <b>quantitatively</b> 170:24 <b>quarter</b> 85:22 154:21 175:2 189:3 <b>quarters</b> 77:12 85:9,17 86:20 88:7 89:22,24 90:18 149:9,18</p> </td></tr>	<b>q</b>	<p><b>qualitative</b> 41:23 45:18,25 45:25 46:16 172:14,15 201:19 <b>quantitative</b> 201:22 <b>quantitatively</b> 170:24 <b>quarter</b> 85:22 154:21 175:2 189:3 <b>quarters</b> 77:12 85:9,17 86:20 88:7 89:22,24 90:18 149:9,18</p>
<b>q</b>	<p><b>qualitative</b> 41:23 45:18,25 45:25 46:16 172:14,15 201:19 <b>quantitative</b> 201:22 <b>quantitatively</b> 170:24 <b>quarter</b> 85:22 154:21 175:2 189:3 <b>quarters</b> 77:12 85:9,17 86:20 88:7 89:22,24 90:18 149:9,18</p>		

<p>150:1 153:24 154:4,7,9 163:8,10 174:14,22 187:11 188:21 189:2 <b>question</b> 9:16 9:18,21,24 21:20 27:9 35:1,6 40:3 45:6 50:1 58:5 58:9,10,17,19 59:19 60:14 62:3,18 63:24 71:17,20,23 78:7 90:2 93:15 102:25 103:7 104:5,8 104:12 110:14 114:5 119:19 122:15 141:20 142:12,16 146:17 147:12 183:19 187:22 187:23 193:19 198:13,20 200:3 203:18 <b>questions</b> 9:14 10:5 73:15 172:8 186:14 191:19 192:7 214:9,13,20,21 214:24 215:7 219:17 220:12</p>	<p>220:14 <b>quick</b> 158:12 <b>quicker</b> 143:24 <b>quickly</b> 74:23 <b>quote</b> 24:13,16 38:10 67:7 69:13 88:20 99:3 127:4</p> <tr> <td data-bbox="1177 661 1500 714" style="text-align: center;"><b>r</b></td><td data-bbox="1177 714 1500 1900"> <p><b>r</b> 2:1 3:1,6 38:25 223:1,1 <b>radiation</b> 70:9 <b>rads</b> 70:10 <b>raise</b> 8:22 <b>raleigh</b> 2:10 3:5 <b>range</b> 40:10 62:14 69:10 76:15 98:21 114:3 117:4 128:7 135:2 149:21 172:2,2 185:17 188:7 189:6 218:1 <b>ranged</b> 113:9 <b>ranges</b> 125:24 172:4 <b>ranitidine</b> 103:1 104:12 <b>rate</b> 213:23 214:5,8,10 <b>rates</b> 199:1 220:4,9</p> </td></tr>	<b>r</b>	<p><b>r</b> 2:1 3:1,6 38:25 223:1,1 <b>radiation</b> 70:9 <b>rads</b> 70:10 <b>raise</b> 8:22 <b>raleigh</b> 2:10 3:5 <b>range</b> 40:10 62:14 69:10 76:15 98:21 114:3 117:4 128:7 135:2 149:21 172:2,2 185:17 188:7 189:6 218:1 <b>ranged</b> 113:9 <b>ranges</b> 125:24 172:4 <b>ranitidine</b> 103:1 104:12 <b>rate</b> 213:23 214:5,8,10 <b>rates</b> 199:1 220:4,9</p>
<b>r</b>	<p><b>r</b> 2:1 3:1,6 38:25 223:1,1 <b>radiation</b> 70:9 <b>rads</b> 70:10 <b>raise</b> 8:22 <b>raleigh</b> 2:10 3:5 <b>range</b> 40:10 62:14 69:10 76:15 98:21 114:3 117:4 128:7 135:2 149:21 172:2,2 185:17 188:7 189:6 218:1 <b>ranged</b> 113:9 <b>ranges</b> 125:24 172:4 <b>ranitidine</b> 103:1 104:12 <b>rate</b> 213:23 214:5,8,10 <b>rates</b> 199:1 220:4,9</p>		

<b>rather</b> 28:17 105:8 143:4 178:1	157:13,25 187:7,12,25 188:1 195:9 196:2	204:1 206:11 206:12 208:8,9 208:21 219:10 220:20 222:3 224:3	<b>reasons</b> 15:20 <b>recall</b> 12:15 16:20 17:21 18:15,18 20:20 20:23 21:5 26:22,23,25 32:13,15 39:1 47:23 50:19 51:19 53:8 54:14 55:9 56:1 60:9 63:16 69:17,22 71:14,18,21,24 76:16,18,21 78:5 80:4,6 84:5 93:7 97:11 100:17 100:22 101:10 101:12 107:2,5 107:7,11 108:18 124:24 125:2 127:1 128:24 131:22 132:21 133:19 137:23 141:2,5 152:19,20 160:14 162:16 163:3 183:14 185:22 186:8 186:21 187:6 191:1,2 192:2 192:4,9,10 193:3,4,8,16,19 193:20 194:2,4
<b>ratio</b> 86:24 98:8 103:1,4 104:13 105:4 109:22 112:15 114:14,18 116:25 117:3 127:20 129:7 129:19 163:20 163:25,25 165:11,15 166:19 167:25 175:12,14,15 176:17 188:25	<b>raymond's</b> 152:11 155:10 158:10 195:14 195:15 <b>reach</b> 187:20 209:15 <b>reached</b> 159:2 209:20 <b>reaching</b> 211:9 <b>read</b> 24:11,17 24:18 38:17,18 43:3,3 67:24 88:23,24 91:4 94:8,9 99:10 99:11 102:24 103:14,21,22 104:3,18 107:21 116:20 116:23 117:12 117:15 119:4 119:23 127:12 127:13 131:2 131:21,22 132:2 134:13 137:19 138:6,7 138:11,12,12 139:1,2 142:3 142:4 149:14 156:20 188:15 188:16 203:17	<b>readable</b> 180:12 <b>reader</b> 98:13 <b>readily</b> 52:6,9 52:10 <b>reading</b> 172:25 <b>reads</b> 38:10 67:10 88:20 99:3 104:3 <b>really</b> 13:6 24:24 28:4 29:24 53:17 71:8 146:16 <b>realtime</b> 1:19 221:3,16 <b>reason</b> 10:2 23:15 62:13 90:24 91:18 130:19 191:22 219:21 220:7 222:4 223:5,7 223:9,11,13,15 223:17,19,21 223:23,25 <b>reasonable</b> 25:1 48:7 62:2 62:7 186:17 188:9	

194:6 195:11 195:18,21 196:17,18 197:13 201:8 201:10,11,11 203:5 210:18 210:19,23 212:22 213:8 213:21,23 214:7 215:6,12 219:18 <b>recalled</b> 53:20 <b>recap</b> 9:11 <b>recapped</b> 41:20 <b>receipt</b> 222:8 <b>receive</b> 58:25 <b>received</b> 58:17 179:25 <b>receiving</b> 74:22 <b>recent</b> 53:19 <b>recess</b> 75:24 121:15 158:17 200:21 212:2 <b>recognize</b> 10:19 11:6 15:2 19:11 78:16 86:6 95:23 96:13 101:22 106:24 111:19 124:17 130:9 134:19 134:21 <b>recognized</b> 31:15 44:13	45:2 47:18 140:1,5 153:16 153:22 154:11 154:16 156:6 159:3,10 169:1 169:18 170:4 170:13 177:20 178:14 189:9 219:10,13 <b>recognizing</b> 159:7 <b>recollection</b> 21:1,8 <b>recommended</b> 69:11 <b>reconcile</b> 153:21 <b>reconnect</b> 39:13 <b>reconstruct</b> 54:13 56:5,8 62:12,22 63:14 <b>reconstructed</b> 54:19 <b>reconstructions</b> 61:20 <b>record</b> 8:2,5,15 9:6 25:9 39:15 39:17,19,21 58:4 75:23 76:1 78:20 96:17 112:2 121:12,14,17 135:23 136:1,4	158:16,19 180:7 200:20 200:23 212:1,4 220:17,19 <b>recorded</b> 1:12 102:2 <b>records</b> 16:5,9 20:13,14,16,18 20:19,20,22,24 21:1,4,11 24:23 52:25 53:22,25 75:17 206:9 <b>redo</b> 49:1 <b>reduced</b> 167:8 <b>refer</b> 45:24 <b>reference</b> 18:9 18:11 37:6 38:19 39:9 62:20 63:1 89:7 121:5 173:18 208:13 <b>referenced</b> 23:24 39:7 47:25 124:20 190:16 <b>references</b> 40:21,24 <b>referencing</b> 161:20 <b>referred</b> 7:3 24:9 46:7 150:12 163:25 167:5	<b>referring</b> 17:19 31:1 59:22 81:2 89:2,10 91:7 93:2 129:23 135:1 137:1 138:21 140:23 183:5 193:5 208:10 <b>refers</b> 23:2 178:15 <b>reflect</b> 53:1 82:22 208:6 <b>reflects</b> 83:13 98:21 <b>refresh</b> 38:21 <b>refute</b> 196:20 <b>regard</b> 157:25 <b>regarding</b> 219:6 <b>regardless</b> 36:10 <b>regards</b> 8:8 <b>registered</b> 1:18 221:2,16 <b>registry</b> 31:2 <b>regularly</b> 48:19 49:17 173:9 <b>regulatory</b> 41:5 <b>related</b> 15:24 16:1 58:3 122:14 155:6 <b>relates</b> 1:8 <b>relating</b> 202:10 203:19
--	---	---	--



<b>relation</b> 152:18	<b>remaining</b>	93:16 94:13	216:21 217:2
<b>relationship</b>	182:25 183:21	95:6 97:10	217:24 218:10
42:20 51:11	<b>remediation</b>	100:4,6 104:15	218:20,21
91:22 92:3	50:4	106:2 109:16	219:2
<b>relative</b> 221:11	<b>remember</b> 77:9	111:8,14,22	<b>reported</b> 1:16
221:12	213:3,17 216:9	113:13 114:24	43:13,23 49:25
<b>relevance</b>	<b>remote</b> 2:6,7,11	116:24 118:10	62:9 69:2
206:18	2:12,15,19	121:24 122:2	82:18 91:1
<b>relevant</b> 39:12	<b>render</b> 206:14	122:13,16	103:4 122:19
145:21 146:21	<b>repeat</b> 9:17	124:21 132:19	170:19 216:6
147:4 173:1	69:12 110:13	132:23 134:25	<b>reporter</b> 1:17
208:18 212:15	131:23 198:13	139:24 142:1	1:18,19 8:19
<b>reliable</b> 54:5	<b>rephrase</b> 58:20	143:13,15,22	8:22 220:18
61:2,5,15	<b>report</b> 5:8,10	145:10 146:8	221:1,2,2,3,15
62:12,22 109:5	5:11,13,14,23	146:14 147:1	221:15,16,16
109:14	15:23 16:13	148:17 150:17	<b>reports</b> 15:3,8
<b>relied</b> 30:21	18:3 19:19	151:23 153:24	15:10,17,18
34:2 58:4,8	24:7,10,11	156:10,13,17	16:19,23 17:12
59:5 65:4	26:11,15,17,19	156:23 157:11	17:17 18:4
83:22 84:9,16	26:24 38:21	157:13 158:11	19:17 21:25
97:25 98:5	39:2,8 40:13	158:22 159:13	23:21,25 24:21
132:16 148:24	42:16,18 43:2	160:6 161:3,7	25:21 26:7
<b>rely</b> 33:24 34:9	43:3,7,17 44:2	161:9,11,14	32:3 33:24
61:13 63:17	44:4 47:21	162:10 163:7	34:23 35:17,19
65:2 82:10	55:4,13,19,24	164:8,13	35:20 37:11
109:11 156:15	56:15 60:2,16	172:14 173:1	40:5,18 41:7
<b>relying</b> 62:6	60:21 64:22	173:19,25	41:11 42:2
64:1 113:1	65:16,19 68:11	174:6 178:10	43:9,11,20,22
156:12 166:10	72:4,6 76:4,6	178:11,22,25	43:22 44:5
215:19	77:3 78:3,17	180:22,23	46:12 48:1,4
<b>remain</b> 184:6	78:19 80:25	181:18 184:4	50:10 54:6
204:3	81:10 84:18	185:16 187:18	55:2 56:25
<b>remained</b> 183:1	88:19 90:11	190:13 212:20	57:7,16 63:10
183:21	91:5 92:21	215:4,8,14,16	65:2,9 75:5

81:15 83:5	<b>requisite</b>	108:6 116:5,11	216:3 221:9
85:2 94:25	206:15	117:6 119:24	<b>reviewed</b> 16:5
97:25 109:12	<b>reread</b> 24:12	120:11 133:7,9	16:8 18:1,12
111:11 117:3	<b>research</b>	138:11 177:10	18:16 19:19
118:12 128:1	107:18 172:22	191:10	20:20 26:11,15
135:20 136:9	192:24	<b>retained</b> 27:3	26:15,17,23
136:24 137:7	<b>residence</b> 6:11	55:17 102:13	35:16,18 42:9
156:19,19,20	<b>residency</b>	157:1,2	42:15,18,19,25
164:11 172:12	162:18	<b>retrospective</b>	43:1 56:21
209:14 210:14	<b>residents</b> 96:23	7:6	72:7 75:17
<b>represent</b>	97:6	<b>return</b> 222:7	78:19,25
11:14 44:24	<b>residual</b> 138:10	<b>reveal</b> 150:2	108:21,25
61:3,15 67:20	138:19	<b>review</b> 20:21	139:10,14,18
123:6 169:6	<b>respect</b> 15:18	21:3,11 24:23	142:5 156:22
189:22	140:14 143:5	26:14 50:21	158:1 161:9
<b>representative</b>	145:12,19	51:3 56:25	174:3 181:12
123:15	156:7 157:19	57:7 83:6 97:9	190:5 193:2
<b>represented</b>	171:12,22	99:18,20	205:11 210:16
93:15,17	217:8	103:25 108:24	210:17 212:10
<b>representing</b>	<b>response</b> 12:23	109:3,13	212:15,17,21
9:8 79:3,5	19:6 91:22	124:22 126:25	<b>reviewing</b>
130:20	92:3 143:6,8	130:18 132:7	20:18 21:1
<b>represents</b>	<b>responses</b> 5:6	132:13,23	181:14
132:14 140:11	11:8	133:20 135:21	<b>revised</b> 35:12
177:25	<b>responsible</b>	136:7 137:24	<b>reynolds</b> 5:23
<b>request</b> 5:3	23:4	147:17 158:5	20:5 26:11
12:24	<b>responsive</b>	180:7 183:23	27:2,10,12
<b>requested</b>	12:22 13:3	184:12,20	30:14 32:9
12:20 221:9	<b>result</b> 112:16	185:15,23	33:24 34:8,12
<b>require</b> 46:16	115:14 177:2	189:13 191:4	34:21 36:2
<b>required</b> 50:4,6	187:12 196:9	191:12 192:1	44:19 54:4,19
50:8 64:5	<b>resulted</b> 185:1	194:12 196:19	56:5,23 59:6
<b>requires</b>	<b>results</b> 67:7	206:8,17 207:7	59:16,19 60:7
201:19	96:18 107:24	208:16 210:13	60:21 68:2

72:1 78:3,18 78:21 80:20 82:11 83:23 84:3,10,12 94:13 96:6 97:4,9 113:8 113:12,23,24 122:22 123:12 123:21,24 124:6 139:22 140:11 145:10 145:20 147:7 158:7 160:23 160:24 161:3,6 161:13,14 162:21 169:6 177:25 179:5,9 180:1,9,22 181:24 183:9 183:10,24 184:13 185:3 186:10,22 189:21 212:11 215:10,14 216:6,16 217:5 217:12 218:10 218:21 <b>right</b> 8:23 11:6 13:21 15:2 32:7 36:17 48:9 56:3 65:18 66:24 72:25,25 85:4 93:23 98:4	101:20 102:23 110:13 115:11 115:11 116:4 117:17 122:5 130:3,22,22 131:7,12,13,20 134:8 136:6 140:20 145:11 148:2 149:4 150:6,16 151:12 158:21 159:19 163:6 164:12,22 170:8 174:5 177:10 178:21 187:6,20 194:5 196:9,11 198:4 198:17 200:25 203:4 212:6 <b>rigid</b> 87:18 <b>rise</b> 208:7 <b>risk</b> 6:12 7:15 36:23 85:8 89:22 90:19 103:8 122:8,14 122:18 123:4,9 124:2,5 127:11 128:4,21,22 132:25 133:3 133:11,25 134:5,10 138:24 154:25 155:12,24 169:12 175:2	194:9,11 198:1 220:3 <b>risks</b> 105:7 123:16 124:5 <b>river</b> 199:2 <b>road</b> 9:12 <b>role</b> 127:6 <b>rough</b> 20:4 49:19 56:22 <b>roughly</b> 18:15 32:14,14 65:18 77:18 160:15 163:4 <b>routes</b> 30:14 36:16 45:21 123:7,12 124:3 <b>rule</b> 31:18 58:2 138:9 <b>rules</b> 1:14 9:11 <b>ruzicka</b> 2:5 4:6 8:16,16 11:25 14:13,20,24 21:16 29:21 31:11 32:19 34:6,14,24 42:23 46:19 53:14,24 55:22 57:21 58:7,16 62:24 74:9 75:14,21 78:11 87:11 88:15 89:5,17,25 90:13,20 92:6 92:16 93:13	96:4 97:17 98:11,19 101:20 103:15 107:9 108:12 109:6 110:10 117:8 119:17 119:25 121:9 126:7 128:15 136:19,25 142:9 146:15 154:18 155:1 157:7,17 158:14 167:1 170:15 183:5 183:12 184:7 184:15 186:19 190:25 191:23 192:14 194:10 195:3 196:25 197:18 198:11 198:18 199:24 200:17 203:8 207:8 208:24 209:18 211:13 211:24 213:5 214:23 215:2 216:2,13 218:8 220:11,20 <b>s</b> <b>s</b> 2:1 3:1 5:1 6:1 7:1 <b>s1</b> 6:4
--	---	---	---

<b>sabotaging</b> 183:11 <b>safe</b> 140:22 142:20 143:4 <b>samples</b> 163:4 <b>sampling</b> 32:10 77:14 145:4,6 163:1 186:1,3 <b>saying</b> 44:25 45:6 72:15 74:17 89:9 91:19 134:2 138:16 142:20 142:21 149:19 154:1 155:14 170:16 175:4 180:8 188:19 188:24 204:5 206:23,23 <b>says</b> 60:4,4 67:6 68:15,19 68:20 94:2 99:21,22 102:2 107:16 115:14 125:16 127:4 130:24 131:8 131:15 133:23 134:4 138:4,9 138:23 139:25 206:3,14 <b>scanned</b> 20:16 56:14 <b>scenario</b> 28:19 50:11	<b>scenarios</b> 50:17 <b>science</b> 64:10 <b>scientific</b> 61:13 62:4,5,21 173:11 211:1 219:6,7 <b>scientifically</b> 109:5 <b>scientist</b> 51:23 <b>scientists</b> 51:18 109:10 <b>scratch</b> 83:2 <b>scroll</b> 139:24 <b>search</b> 13:3,10 13:18 64:21 65:1,3,5,8,12 65:15 173:2 <b>searched</b> 12:22 <b>second</b> 39:15 52:24 89:2 93:24 130:23 131:6,8 133:9 135:24 162:3 208:4 <b>secondly</b> 138:2 138:4 <b>section</b> 26:20 79:9 81:11,17 84:17 94:20 133:23 139:25 140:9 143:15 183:2 <b>see</b> 12:18 36:20 38:9 39:25	60:3,16 66:23 68:14,15 77:5 79:12 82:2 86:10,18 93:23 93:25 96:19 99:21 100:12 100:15 104:3 105:2 108:8,9 110:4,17,18,20 110:23,24 111:2 114:18 114:21,22 116:5,11 120:10 122:2 125:11,12,14 125:17 131:17 133:5 134:1 135:8,11,14,16 135:18 137:9 138:1,3 139:25 144:15 148:8 165:5 176:16 180:16,18 181:6,8,21 182:13 184:21 196:15 <b>seeing</b> 23:16 91:15,16 170:18 195:18 <b>seem</b> 184:5 <b>seems</b> 180:11 <b>seen</b> 10:23 11:11 51:6 66:18 155:19	179:22 184:14 205:7 <b>segmented</b> 38:14 <b>select</b> 41:10 <b>selection</b> 108:4 <b>sense</b> 48:14,14 54:23 56:8 89:1 90:4 97:21 173:12 213:16 <b>senses</b> 75:16 <b>sensitivity</b> 68:25 69:3 81:21,25 82:5 82:22 83:4 147:10,14,17 148:3,4 162:4 162:6,9,22 167:4,16 176:22 177:1,9 <b>sentence</b> 38:10 88:18 89:14 94:19 127:13 130:23 131:4,6 131:8,18 133:22 134:8 135:1 138:8,13 138:20,22 158:25 178:15 182:3 206:13 207:10 <b>sentences</b> 134:4 159:2
---	---	---	--

<b>separate</b> 13:17 23:12 26:20 37:24 98:3 <b>separately</b> 21:3 <b>serum</b> 73:21 74:14,19 <b>served</b> 10:21 11:9 20:2 <b>serving</b> 205:23 <b>sessions</b> 213:9 <b>set</b> 30:17 32:23 35:20 57:18 77:10 92:23 133:9 162:3,24 189:14 221:7 <b>sets</b> 81:17 86:13 118:18 132:25 133:3 165:5 205:18 205:22 <b>setting</b> 116:7 <b>settings</b> 61:1 <b>seven</b> 85:9 89:24 149:8 <b>several</b> 159:16 195:1 201:6 <b>sheehan</b> 203:20 <b>sheet</b> 222:4,6,8 <b>shields</b> 210:15 210:17 <b>shops</b> 130:16 130:25 131:25 <b>short</b> 136:2	<b>shorter</b> 69:16 <b>shorthand</b> 1:17 221:1,2,15 <b>show</b> 69:12 101:14 204:20 <b>shows</b> 69:8,15 <b>shut</b> 160:13 <b>side</b> 13:22 148:2 177:10 <b>sign</b> 220:20 222:5 <b>signature</b> 220:19 221:14 <b>signed</b> 15:9 224:10 <b>significance</b> 87:15,19 88:17 119:21 <b>significant</b> 40:9 87:10,13,22 88:14 119:16 121:8 128:6,7 136:17,22 155:23 156:1 164:5 195:2 <b>significantly</b> 103:10 121:7 <b>signify</b> 24:19 <b>similar</b> 54:12 73:14 149:21 171:2 187:15 188:10,20 189:2,4,5 210:5,6 216:19	216:22 218:15 220:9 <b>similarly</b> 103:5 <b>simple</b> 148:13 <b>simply</b> 114:1 <b>simulated</b> 67:19 <b>single</b> 73:17 81:20 112:9 178:5 <b>sir</b> 18:23 117:24 178:23 <b>sit</b> 20:25 62:20 192:2,9 194:5 201:9 <b>site</b> 192:5 220:8 <b>sits</b> 56:3 <b>sitting</b> 106:13 173:17 214:8 <b>situation</b> 36:6 46:15 62:17 71:6 127:22 <b>situations</b> 51:13 <b>six</b> 89:22 90:18 149:18 150:1 153:24 174:14 187:11 <b>slightly</b> 22:25 35:12 79:15 <b>small</b> 99:5 155:22 <b>smaller</b> 50:16	<b>smith</b> 2:13 <b>smoked</b> 196:14 196:15 197:11 198:8,15 <b>smokers</b> 219:24 <b>smoking</b> 126:23 127:5,6 127:8 137:21 137:23 138:5 138:18 194:8 194:11,13,17 195:2,6,8,10,20 197:22,25 219:18 220:5 <b>solely</b> 82:10 <b>solid</b> 52:2 <b>solution</b> 33:13 33:17,21 <b>solvents</b> 7:13 7:18 <b>somebody</b> 74:21,21,24 <b>someone's</b> 23:4 193:25 <b>sorry</b> 13:23 17:8 39:10 40:17 59:25 61:21 68:12 101:18 107:15 110:9 115:9,25 129:8 131:3 133:1 139:9 151:7 159:23 159:24 165:24
---	--	---	---

179:15 183:2 196:21 198:14 <b>sort</b> 26:19 41:25 63:23 <b>sound</b> 9:25 26:8 194:22 <b>sounds</b> 100:23 197:9 <b>source</b> 36:13 173:11 193:23 195:7 199:11 200:6 <b>southeast</b> 199:2 <b>space</b> 222:4 <b>speak</b> 184:19 <b>speaking</b> 45:15 46:11 76:17 <b>specialty</b> 205:15,19,20 209:2 <b>specific</b> 12:15 15:16 19:9 20:19 21:7,8 22:20 28:1,18 28:21 29:9 35:11 41:10,22 44:1 46:22 47:16,24 49:21 50:5,17,18 51:19 53:19 60:11 62:20,25 63:11,12 66:2 67:11 69:17 70:18 71:15	73:24 74:2 75:2 76:21 82:13 98:18 99:6,9 101:12 126:9 133:19 139:9,10 141:5 141:21 143:17 143:19,21 158:6 173:2,11 173:13,18 174:2 180:12 184:18 191:18 192:5,6 193:20 194:20 202:12 204:8,11,15 208:2 209:11 212:12,13,13 212:22 <b>specifically</b> 21:5 45:15 71:19,22,25 78:6 95:6 107:11 112:21 125:3 152:20 169:14 183:14 194:4,6 196:18 202:15,22,23 210:18 <b>specifics</b> 106:1 201:12 <b>speech</b> 23:6 <b>spend</b> 76:5 <b>spending</b> 181:14	<b>spent</b> 31:25 77:12 138:24 163:8 210:1 <b>spite</b> 220:4 <b>spoke</b> 40:3 <b>spreadsheets</b> 55:10,15 56:4 56:12,16 <b>standard</b> 100:19 206:15 206:24 207:13 207:16,20 208:2,10,11,13 208:14 <b>standards</b> 207:12 <b>stands</b> 59:13 84:22 <b>started</b> 183:25 187:4,7 <b>starting</b> 34:5 36:4 47:9 85:7 99:2 102:23,24 148:17 <b>state</b> 23:25 52:3,12 81:19 83:20 85:7,13 85:16 90:10,14 100:4 109:22 111:22 114:14 122:8 127:16 140:22 146:7 158:25 163:7 163:12 166:5	167:4,18 176:3 208:6 222:4 <b>stated</b> 65:25 69:7,14 99:12 99:13 118:8 128:21,25 132:12 138:14 146:10,13 164:9 186:22 186:23 187:10 191:15 195:11 <b>statement</b> 6:19 15:15,17 36:23 53:21 88:25 89:4,10 93:2 94:10,11 132:8 132:9,14 148:21 153:21 153:23 172:14 172:16 191:13 191:13 205:13 <b>statements</b> 41:5 <b>states</b> 1:1,15 8:10 9:8 15:5,5 15:6,7 24:12 42:15 50:21 57:1,8 77:5 210:14 <b>stationed</b> 86:14 94:2 <b>statistical</b> 87:14,18 88:17 119:21
---	---	---	---

<b>statistically</b> 40:8 87:9,13 87:22 88:14 103:9 119:15 121:8 128:6,7 136:17,21 155:23,25 156:1 164:4	44:6 84:24 103:24 104:1 108:19 122:1,7 122:9 123:4,10 124:20 140:18 146:3 169:25 170:25 171:25 187:4,7 189:14	106:25 107:4,7 107:10,17,24 108:10,15,20 109:4 112:19 124:25 132:6 132:10,13,16 132:18 135:1 135:19 137:22 138:15 143:12 143:14 145:25 149:3,25 150:7 151:5 154:19 155:21 156:9 167:3 168:6 178:15,17,18 190:16 191:19 191:20 202:18 204:12,14 210:24 211:1 212:16 217:9	<b>submitted</b> 11:15,17,20,23 12:1,4,10 15:22 17:13 46:12 108:21 <b>submitting</b> 12:8 <b>subpoena</b> 10:20 12:13 <b>subscribe</b> 224:6 <b>subscribed</b> 224:14 <b>substance</b> 27:24 121:20 <b>substances</b> 31:2 <b>substantial</b> 44:20 45:12,19 45:22 46:10,14 46:18 47:5,9 47:12,14,18 140:10,12 159:4 169:7,21 170:17,20,23 171:3,7,21 172:18 177:25 181:14 189:22 189:25 201:18 201:23 211:11 <b>substantially</b> 18:6 19:10 82:3 157:5 216:22 218:15
<b>status</b> 28:24 <b>statutory</b> 160:8 <b>stay</b> 65:6 <b>stenographic...</b> 221:7 <b>step</b> 111:11 <b>steps</b> 13:2 <b>steven</b> 156:16 <b>sticking</b> 39:23 <b>street</b> 2:3,9 <b>strictly</b> 75:18 <b>strike</b> 179:8 205:21 <b>strong</b> 92:15,18 <b>strongest</b> 210:11 <b>structure</b> 85:1 <b>studied</b> 149:25 188:6 <b>studies</b> 26:2 36:20 37:3,4,6 37:10,11,24 38:9 40:12 41:4,6,8,11,12 42:6,12,20,25 43:2,7,11 44:4	<b>study</b> 6:9,11 7:4,6,8,13,18 17:10,19,22 18:2,22,25 37:7,8,12,15,18 38:3,4,11,20,22 39:3,7 40:4,5,6 40:11 41:23 42:5,8,9,10,14 67:14 86:1,8 87:17 88:21 89:3,9 90:22 90:23 91:2,19 93:11,20 95:19 96:15 97:22 98:2,5 99:14 103:8 104:5,8 104:11 106:19	<b>studying</b> 204:8 <b>subdivision</b> 132:6 <b>subgroup</b> 86:16 154:3,4 <b>subgroups</b> 138:17 <b>subject</b> 109:12 <b>subjective</b> 46:16,21 <b>subjects</b> 132:6 <b>sublimation</b> 52:2	

<b>sufficient</b> 36:21 46:14 90:23 154:15,24 155:11 157:13 169:11 170:12 196:7 <b>sufficiently</b> 54:5 <b>suit</b> 51:9 <b>suite</b> 1:19 2:3 2:17 <b>sum</b> 96:22 97:5 <b>summary</b> 26:16 26:20,24 36:4 56:6 <b>summed</b> 79:10 145:9 179:4 181:25 182:12 182:21,23 <b>supplement</b> 20:8 35:22 190:18 <b>supplemental</b> 5:18 18:20 19:5 20:1 66:10 96:1 <b>support</b> 61:14 62:21 85:25 95:18 <b>sure</b> 11:20 12:17 13:7,10 15:25 16:2,2 21:22 25:4 26:18 27:1,1,1	29:3 34:16 35:13 44:3 50:25 53:17 54:23 56:2 60:2 63:13,19 68:10 69:14 75:19,21 82:9 89:13 91:21 93:14 97:13 103:19 107:13 108:20 120:5 122:20 124:24 128:11 134:24 139:17 146:9 147:25 148:1 151:3 158:14 164:1 183:19 184:11,25 187:22 198:15 200:17 211:24 213:7 <b>surrogate</b> 149:10 153:25 <b>surrounding</b> 46:23,25 194:13,13 <b>surveillance</b> 50:7,8 <b>survey</b> 108:11 108:14 <b>susceptibility</b> 90:8 <b>suspect</b> 161:22	<b>suspected</b> 24:3 <b>suspended</b> 24:15 <b>swear</b> 8:20 <b>swimming</b> 181:17 <b>sworn</b> 8:23,24 9:3 221:4 224:14 <b>symptoms</b> 23:4 50:3 <b>synonymous</b> 22:23 <b>synonymously</b> 22:25 <b>system</b> 37:4,7 38:2 47:2 50:18 52:21,23 81:20 82:19 182:6 184:18 <b>systems</b> 31:9,18 31:19 48:8 50:14,16 185:11 <b>t</b> <b>t</b> 5:1 6:1 7:1 223:1 <b>table</b> 6:4 55:3 79:18,18,19 80:20 82:24 83:16,18,23 86:11,12,19 87:25 88:6	91:8 99:18 100:1 112:12 113:2,15 114:17 115:13 116:7,12 117:16 125:9 125:11 127:18 132:24,25 133:2,3 135:9 137:10 150:11 161:4,6,10,11 161:19 162:21 162:24 165:5 180:3,9,10 182:10 183:15 204:10 218:25 <b>tables</b> 26:24 54:11 77:21,25 80:7 81:1 83:4 179:4 <b>take</b> 9:20 13:2 13:17,23 36:15 46:3 52:17 70:10 75:19 78:25 156:22 158:12 211:22 216:8 <b>taken</b> 1:14 47:13 75:24 78:2 102:7 121:15 124:3 158:17 170:17 180:9 200:21 212:2 221:7
---	--	---	---



223:2 <b>talk</b> 9:22,22 26:6 29:8 82:12 85:4 105:25 106:1 121:19 122:7 190:15 <b>talked</b> 125:5 <b>talking</b> 28:5 46:24 61:17 68:24 72:25 92:10 131:3 171:14 217:16 <b>talks</b> 127:14 <b>tarawa</b> 30:22 31:5 32:11 48:8 77:8,11 77:14 79:16,19 83:22,24 106:3 182:4 211:8 <b>tawara</b> 66:1 <b>tc</b> 127:20 <b>tce</b> 25:11 27:13 40:22,22 41:18 52:5,18 67:12 68:22 71:13 79:16,17 84:23 115:18,19 116:8 117:18 118:2 129:2 140:7,12,24 142:16,17 148:9 152:2,12 152:15 153:13	153:17 159:2,6 160:19 166:13 167:8,11,18,25 169:3,7 176:11 176:16 177:21 189:23 192:19 192:25 <b>tdce</b> 67:13 <b>team</b> 43:1 47:22 <b>techflow</b> 106:3 106:7,9 113:16 217:12,20 218:16 <b>technology</b> 208:12 <b>ted</b> 2:5 8:16 10:11 213:2 <b>teenager</b> 186:8 <b>tell</b> 27:22 57:19 58:10 98:24 102:21 106:11 155:16 182:16 196:10 <b>tend</b> 23:13 28:16 53:20 <b>tends</b> 29:12 <b>term</b> 23:1 24:19 81:25 <b>terminology</b> 101:8 <b>terms</b> 22:21 65:12 72:2 189:5	<b>terrace</b> 30:23 31:5 32:11 48:8 66:1 77:9 77:11,14 79:16 79:20 83:22,24 106:3 182:4 211:8 <b>terry</b> 6:16 <b>tertile</b> 38:13 137:12,16 <b>testified</b> 9:3 80:8 94:24 100:19 128:11 129:24 142:6 170:7 185:1 198:25 200:25 202:4 <b>testify</b> 221:4 <b>testifying</b> 53:8 93:7 107:2 124:24 141:2 207:12,16,20 208:14 <b>testimony</b> 17:22 19:1,4 23:7 40:14 52:25 74:3,8 74:10,12 107:6 121:20 125:3 127:25 155:9 186:24 193:16 193:20 199:4,7 206:5,19,22,24 207:2,3 208:1	208:2 209:3,12 212:11 219:19 221:7 <b>testing</b> 31:16 <b>tetrachloroet...</b> 7:15 25:11 130:24 131:16 131:24 133:25 <b>texas</b> 2:18 <b>thank</b> 14:25 66:12,17 81:9 96:8 110:11 122:20 129:6 136:11 151:12 159:11 182:9 182:11 203:9 203:12 204:17 214:23 219:3 220:12 <b>thermal</b> 6:12 <b>thing</b> 26:13 80:24 121:11 124:1 143:1 <b>things</b> 69:5 74:3,22 <b>think</b> 10:12 15:21 17:11 18:9 19:4,9,18 21:9,24 22:24 22:25 23:15,23 23:25 24:4 25:17 27:19 30:3,3 36:8,15 36:24 38:18
---	--	--	---

39:6 40:3	176:14 177:5	57:14,20 63:4	163:17 169:2
42:11 43:4,10	180:5 182:2,5	79:23 85:22	174:14 177:21
44:1,9,24	182:18 183:5	110:6,22 111:1	181:14 185:17
45:13 46:13,20	184:25 185:16	120:24 154:15	185:20 186:5
47:7,8,20 48:3	186:14,17	166:3 168:22	186:25 187:2
50:17 52:7,8	190:20 195:5	196:16 197:6	188:22 189:3,7
53:6 54:22	197:4 198:19	<b>threshold</b> 71:7	194:6 200:15
55:3,21 56:12	201:15,21	128:12 129:3	200:19,22
58:5,11,14	203:10 204:4	129:23,25	208:7 210:1
61:6 70:12	206:21 207:5	197:16	211:25 212:3
76:25 77:17	207:10,14,23	<b>tick</b> 142:23	213:19 214:11
78:8,18 80:24	208:22 209:1	<b>time</b> 1:21 8:5,6	220:17 221:7
82:15 88:25	209:19,23	9:20 10:13,13	<b>timeframe</b>
90:3,23 92:17	210:11,24,25	12:5,7 17:1,16	201:12
92:19 93:16	211:7,15,15	18:5 31:25	<b>times</b> 34:2
94:18 96:6	216:23 219:12	32:1 39:16,20	49:17,20,24
97:8,13 98:12	<b>third</b> 54:3	50:19 53:4,10	51:8 53:1
103:22,23,25	59:22 131:4,18	53:13 65:21	82:19 121:11
103:25 111:10	<b>thirdly</b> 138:23	74:14 75:22,25	126:5,13,15,18
111:10 117:2,9	<b>thirtieths</b>	76:5,6,7 77:15	126:21 147:22
119:4 121:10	147:22	80:14 84:21	164:9 197:21
122:11,15	<b>thirty</b> 222:8	85:7 88:18	<b>tiny</b> 179:24
134:24 135:1	<b>thorough</b> 206:8	101:7 121:13	<b>titled</b> 81:11
141:25 142:10	208:16	121:16 135:25	84:18
142:19 143:16	<b>thought</b> 45:16	136:3 138:24	<b>tobacco</b> 138:10
146:10 147:9	147:3 154:6	140:6 144:7,25	<b>today</b> 8:4 10:3
147:19 149:14	188:3	146:3 148:17	20:25 140:18
151:12 154:19	<b>thousand</b> 112:4	148:24 149:5,9	142:11 184:14
155:2,14	112:7 126:1,10	149:18,20,23	189:15 201:9
156:20 162:6	126:21 218:16	153:17,23	204:3 210:22
164:17 167:15	<b>thousands</b>	158:15,18	211:5 212:14
170:6 171:10	126:5,13,18	159:16 160:8	<b>today's</b> 9:8
174:24 175:12	<b>three</b> 31:5,14	160:16,22	<b>together</b> 134:9
175:19,25	31:19,22 48:1	162:19 163:2	

<b>told</b> 147:19	<b>toward</b> 202:22	119:15 121:6	<b>transparent</b>
<b>tolerance</b> 73:25	202:23 208:14	<b>training</b> 20:17	44:10
74:21	<b>towards</b> 202:15	173:13 186:13	<b>transposed</b>
<b>tolerant</b> 74:25	<b>toxic</b> 30:12	202:5 203:23	188:25
<b>tom</b> 2:6	31:1 209:6	<b>transcript</b> 6:7	<b>treated</b> 63:21
<b>took</b> 36:19	<b>toxicological</b>	6:14 10:17	<b>treating</b> 63:20
136:6 211:21	40:21	11:4 14:2,8	198:24
<b>top</b> 52:4 70:8	<b>toxicologist</b>	17:4 19:22	<b>treatment</b> 50:5
100:5 108:3	29:18 48:18	20:5 56:21,22	67:17
188:4	52:5 63:8,25	66:15 78:14	<b>trichloroethyl...</b>
<b>tort</b> 209:6	69:25 71:12	96:11 101:17	25:10
<b>total</b> 26:2 27:17	73:6 173:14	101:25 102:10	<b>tried</b> 54:13
27:18 29:14	201:2	130:6 134:16	<b>true</b> 53:18
30:5,6,6,19,19	<b>toxicologists</b>	141:10,14	119:22 148:22
33:15 44:1	71:5 109:11	158:1 178:4	193:14 204:3
59:9,10,11,23	<b>toxicology</b>	179:18 186:15	224:7
63:4,15 68:20	48:23 51:7	186:22,23	<b>truth</b> 221:4,4,5
68:25 71:5	202:20 203:2	190:6 203:6	<b>truthfully</b> 9:14
72:9,13,16,19	203:24	205:1 221:6,6	<b>truzicka</b> 2:5
72:22 73:3	<b>toxin</b> 29:25	221:9 222:9,9	<b>try</b> 9:22,22,23
80:25 83:10	70:2,4,12,24,25	224:4,7	58:23 65:6
84:22 99:15,24	71:9 72:21,22	<b>transferring</b>	188:18 192:24
110:21 115:4	72:25 73:3,10	52:12	195:23
130:15,15	188:7	<b>transformed</b>	<b>trying</b> 29:19
146:1 150:25	<b>toxins</b> 30:1	56:13	39:12 50:16
182:7 185:17	71:3	<b>transforming</b>	56:8 65:22,23
<b>totals</b> 79:11,21	<b>traditional</b>	52:11	114:6
145:9 179:4	87:9,12 88:13	<b>translate</b> 46:6,8	<b>turn</b> 12:17 38:7
181:21,25	88:16 119:20	<b>translated</b>	67:2 79:6
182:13,14,22	120:1 136:18	79:20	86:10 102:20
182:23	136:20 156:1	<b>translation</b>	109:25 112:12
<b>touched</b> 199:15	164:4	46:25 47:3	115:22 117:21
<b>tov</b> 164:18	<b>traditionally</b>	<b>transmitted</b>	118:17 120:9
	87:20,23 92:17	113:24	127:2 130:21

132:24 133:21 135:5 137:25 139:8 141:15 143:22 148:16 150:9 152:6 153:4 157:20 158:21 163:6 163:22 165:1 165:22 166:16 167:22 174:5 176:15 178:21 180:25 181:9 203:13 <b>turning</b> 115:18 118:13 119:1 129:17 159:12 164:13,22 175:15 176:20 177:13 <b>tvoc</b> 81:3 84:22 94:12,15,21 95:9 100:4,13 105:2 150:17 150:21 151:8 151:11 164:13 164:14 169:2 175:8 177:21 <b>tvocs</b> 151:8 <b>twice</b> 212:9,23 <b>two</b> 14:15 29:1 44:23 45:14 65:18 80:22 90:5 105:14 106:2,12,14	114:11 118:5 119:6 123:12 129:2 133:12 134:4 140:20 142:24 159:1 168:2 181:11 196:15,16,23 196:23 197:6 198:3,9,16 211:22 213:10 <b>typical</b> 55:23 62:15 67:20 70:21 <b>typically</b> 22:16 51:13,22 52:1 52:3 55:19 56:15 63:17 64:8 69:25 71:4 87:16 91:23 109:9 112:22 202:7 <b>typo</b> 39:4 <b>typos</b> 53:23 54:1 <b>u</b> <b>u.s.</b> 3:4 7:10,13 <b>uncertainty</b> 34:17,20 98:16 99:7 <b>unclear</b> 122:8 123:3 169:20 <b>under</b> 9:13 38:9 58:15	86:19 88:13,16 88:16,18 99:21 113:14 129:2 135:11 137:8 140:10 148:9 160:9 165:19 166:7,14 167:20 168:8 168:18 174:17 175:3,9,16,23 176:4,12,21 177:14 187:2 <b>underestimate</b> 94:22 <b>underlying</b> 6:5 126:23 <b>understand</b> 9:16 22:21 29:19 30:25 31:4,8 44:3 80:16 81:25 83:1,3 114:5,6 128:11 148:2 158:6 <b>understanding</b> 10:4 16:4 22:10 27:5 30:13,16,24 31:7,14,19,24 32:20 34:10 43:3 52:20 53:11 54:18 59:21 60:6,7 60:18,20 66:4	68:1,4,23 69:19 76:12 96:24 106:5 108:22 122:22 123:2 144:5,21 145:1 160:15 163:5 <b>understood</b> 9:18 <b>unit</b> 27:16,17 63:3 70:1,13 71:1 72:3,8,15 72:19 95:15 125:13 <b>united</b> 1:1,15 8:10 9:8 15:4,5 15:5,6,6 42:15 50:21 56:25 57:7 210:14 <b>units</b> 33:2,8 63:4,15 72:9 72:13 <b>updated</b> 64:25 218:25 <b>upper</b> 69:10 100:14 113:21 <b>upwards</b> 49:20 <b>urinary</b> 86:23 <b>urological</b> 199:1 <b>usdoj.gov</b> 3:6,7 <b>use</b> 23:18 34:5 38:8 41:11 42:10 50:12
--	--	--	---

84:15 85:12 100:22 113:25 114:8 133:20 145:23 149:11 184:18 <b>used</b> 22:24 23:5 23:5 24:4,5,7 27:16,21 32:9 36:2,3 42:4 56:10 61:6,10 67:7,15 68:2 72:9 76:25 82:16 84:4,13 92:23,25 97:4 101:12 106:2,6 106:8 112:22 113:19,20 114:3 123:16 123:17 127:25 138:16 141:6 210:20 218:5 218:17 222:10 <b>users</b> 104:13,13 <b>uses</b> 96:21 155:21 <b>using</b> 32:6 61:23 63:9 93:25 101:7 109:19 113:16 113:18 145:17 146:6 148:6 202:19 203:2 211:4 218:25	<b>usmc</b> 7:6 <b>usually</b> 33:18 64:1 <b>utilities</b> 50:15 <b>utility</b> 50:20 <b>utilize</b> 50:10 87:17 <b>utilized</b> 217:25 <b>utilizes</b> 49:11 <b>utilizing</b> 60:8  <b>v</b>  <b>v</b> 15:4,5,5,6,6 <b>valid</b> 35:7 <b>value</b> 135:16 <b>values</b> 69:11 114:4 184:18 <b>vargo</b> 1:17 8:20 221:2 <b>variable</b> 81:3 112:20 145:9 179:4 181:25 182:12,21,23 <b>variables</b> 53:5 79:11 140:6 <b>varied</b> 53:10 <b>various</b> 30:9 37:3 51:18 60:25 61:21,21 61:25 71:8 90:8 103:24 133:3 185:11 193:7 203:2 205:18	<b>vc</b> 67:13 <b>verbatim</b> 221:6 <b>verifying</b> 66:22 <b>veritext</b> 3:10 <b>version</b> 60:4 80:5 190:21 205:9,10 218:25 <b>versions</b> 55:20 55:24 56:15 <b>versus</b> 69:6 74:23,25 154:2 154:2 171:3 197:22 215:15 219:1 <b>video</b> 1:12 8:7 102:2 <b>videoconfere...</b> 1:12 <b>videographer</b> 3:10 8:1,4,19 39:10,16,20 75:22,25 121:13,16 135:25 136:3 158:15,18 200:19,22 211:25 212:3 220:15 <b>videotaped</b> 5:6 11:8 <b>view</b> 100:25 201:1 208:18	<b>viewed</b> 139:14 <b>vinyl</b> 25:12 27:13 41:18 52:5,18 71:23 71:25 79:19 84:23 118:13 118:15,19 140:7,12 143:6 143:9 152:22 152:23 153:11 160:19 168:7 169:11,13,14 171:16,23,24 172:18,23 173:4,5 176:20 177:22 189:23 <b>voc</b> 67:16 <b>vocs</b> 52:14 66:3 67:8,12,20 108:17 220:3 <b>volatile</b> 26:3 52:8,11,13 66:3 84:22 150:25 <b>volatilization</b> 52:18 <b>volatilize</b> 51:25 52:6,7,10 <b>volume</b> 60:13 60:22 61:22,22 62:1,10 <b>volumes</b> 62:13
--	---	--	---

<b>w</b>	48:18,24,25	155:2,2,14	<b>wider</b> 101:4
<b>walk</b> 148:1	49:2,16,23	157:8 181:13	104:22,24
173:8	50:10,12,13,16	185:6 188:19	105:21,23
<b>walking</b> 171:3	50:18,19,23	194:24 195:12	111:4,6 119:10
<b>wallace</b> 2:11	51:3,16 52:16	200:2 219:15	119:12 121:3,5
213:2	52:21,22 60:8	<b>ways</b> 61:21,21	151:19,21
<b>walter</b> 1:13 4:4	60:12,13,22,25	61:25 62:3,7	<b>wilmington</b>
9:1 223:2	61:22 63:15	62:14,22 72:11	2:14
224:12	66:1,21 67:7	73:18 82:2	<b>window</b> 65:21
<b>want</b> 9:20 26:6	67:17,17 68:2	<b>we've</b> 41:6	<b>witness</b> 4:3
58:20 72:24	81:20 82:19	176:14 177:5	8:21,24 9:2
76:3 83:1	83:21 98:18	189:14,17	14:22 21:22,23
94:12 101:18	99:8 146:6	211:5	96:6 102:14
105:1,25	182:6 184:17	<b>weighed</b> 73:19	110:12 183:11
121:25 139:24	185:11 186:13	<b>weighs</b> 74:5,24	183:13 203:10
141:18 150:17	191:8 199:12	<b>weight</b> 29:3,12	205:15,19
158:21 172:7	200:8 201:1,5	29:16 70:1,1	206:4 208:15
174:5 178:21	201:14 219:7	70:11,13,14	208:23 209:5,9
190:15 200:16	219:11,15	71:2,7 72:2,3,8	209:11 214:22
214:12 220:18	220:10 223:1	72:20,23,23	215:25 218:4
<b>wanted</b> 83:3	224:1	73:4,7 75:6	222:1
<b>ward</b> 2:13	<b>watermodeling</b>	<b>weights</b> 73:22	<b>witnesses</b>
<b>wardandsmit...</b>	5:21,21 66:25	74:4 75:9	205:24 206:14
2:15	67:3	<b>wells</b> 50:16	<b>women</b> 135:16
<b>water</b> 1:5 7:5,9	<b>way</b> 28:1 30:17	160:13	136:12
7:13,16 8:9	35:9 36:24	<b>went</b> 152:19	<b>words</b> 132:12
30:21 31:8,17	46:8 54:1,22	184:11	162:8
31:18,23 32:18	58:18 61:3,5	<b>west</b> 1:19 2:9	<b>work</b> 54:15
32:23,24 33:4	61:15 62:12	<b>whoops</b> 13:23	64:8 97:6,24
33:9,11 34:9	66:22 70:5,17	<b>wide</b> 98:9 99:4	109:14 213:20
34:11 35:16,20	70:20,21,23	100:21 101:1	214:6
37:4,7 38:2	73:16 87:15	101:11 103:5	<b>workers</b> 7:12
47:1 48:8,15	112:19 130:22	103:13 104:16	88:3 133:12,13
	131:13 137:9		

<b>working</b> 6:9 22:17 <b>worksheet</b> 83:18 <b>world</b> 193:13 <b>worth</b> 213:20 <b>written</b> 35:3 89:19 178:10 207:1 <b>wrong</b> 14:14 <b>wrote</b> 156:10 156:14,17	<b>years</b> 91:10 125:7,8,13,19 125:22 126:4 127:21 129:9 129:20 133:12 133:14 137:9 196:17,23 197:7 198:4,9 198:16 <b>yielded</b> 36:10 <b>yoon</b> 103:8 <b>younger</b> 91:10 <b>yu</b> 17:19,22 18:21,25 40:4 40:4,11 143:12 143:16,19 155:20 156:9 190:16 212:16 212:16
<b>x</b>	<b>z</b>
<b>x</b> 4:1 5:1 6:1 7:1	<b>zantac</b> 6:7 102:5 203:6 <b>zero</b> 152:9 153:7 <b>zeros</b> 160:19 <b>zina</b> 2:19 <b>zina.bash</b> 2:19 <b>zoom</b> 39:11 213:6
<b>y</b>	
<b>yeah</b> 10:22 26:9 44:9 56:20 59:18 60:2 65:22 66:10 71:3 78:11 87:1 88:24 90:3 100:1 101:24 110:16 129:25 133:2 140:15 140:16 162:6 180:14 182:2 183:7,12,14 188:16 198:19 204:4 214:10 216:12,22	

Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

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

(A) to review the transcript or recording; and

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

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

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.



VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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