Exhibit 614

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

IN RE: :
CAMP LEJEUNE WATER :
LITIGATION :
: :
This Document :
Relates to: :
ALL CASES :

- - -

July 27, 2025

- - -

Videotaped deposition of STEPHEN MICHAEL GOLLOMP, M.D., taken pursuant to notice, at the law offices of Anapol Weiss, One Logan Square, 130 N. 18th Street, Suite 1600, Philadelphia, Pennsylvania, commencing on the above date at or about 9:05 a.m., before Eileen P. Barth, C.S.R., N.P.

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DEPOSITION SUPPORT INDEX

DIRECTIONS NOT TO ANSWER:
PAGES: None
REQUESTS FOR DOCUMENTS OR INFORMATION:
PAGES: None

STIPULATIONS AND/OR STATEMENTS:
PAGES: None
MARKED QUESTIONS:
PAGES: None

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EXHIBITS

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EXHIBITS

(Exhibits Gollomp 1 through 7 were premarked.)

THE VIDEOGRAPHER: Good morning. We are now on the record. My name is Chris Clee. I'm a videographer for Golkow, a Veritext division. Today's date is July 25th, 2025, and the time is 9:05 a.m. Eastern Standard Time.

This video deposition is being held in the matter of Camp Lejeune Water Litigation. The deponent is Dr. Stephen Michael Gollomp.

Will counsel please introduce themselves?

MR. DOWLING: Mike Dowling, Plaintiffs' co-lead counsel, Raleigh, North Carolina, on behalf of the Plaintiffs, and in particular, Robert Welch and Diane Rothchild.

MR. BLANCO: Alejandro Blanco, also out of -- also for Plaintiffs, Glendale, California.

MS. ELLISON: Anna Ellison on behalf of the United States Department of Justice.

MR. TURNER: And Joseph Turner on behalf of the United States Department of Justice.

THE VIDEOGRAPHER: The court reporter is Eileen Barth, who will swear in the witness.

STEPHEN MICHAEL GOLLOMP, M.D., having been duly sworn, was examined and testified as follows:

BY MR. DOWLING:

Q. Good morning, Dr. Gollomp.

A. Good morning, Mr. Dowling.

Q. We briefly introduced ourselves beforehand, but as you indicated, my name is Mike Dowling. I represent the Plaintiffs, and we're here to take your deposition today.

Is that your understanding?

A. That is my understanding as well.

Q. I'm going to hand you a

document which has been premarked as Exhibit 1 to your deposition.

MR. DOWLING: Do you need a copy of that, Madam Court Reporter?

BY MR. DOWLING:

Q. Take a minute to review that document, Dr. Gollomp.

A. Okay.

Q. Do you recognize the document that's Exhibit 1?

A. Yes, I do.

Q. And it is actually two documents that have been combined. There's a Subpoena to Testify at a Deposition in a Civil Action and then there's a schedule to the subpoena as well, and there is also a notice of the deposition.

Did you receive all three of those documents?

A. Yes. I think I received them as a package of two, but I recognize them.

Q. Okay. And so you understand the subpoena is a command for you to come today and provide your testimony in regards to the cases of Robert Welch and Diane Rothchild pending in the Eastern District of North Carolina?

A. Yes, I understand that.

Q. And you understand you're under oath at this moment and you will be throughout the course of this deposition?

A. I do.

Q. You understand that if you provide any materially false information, that that is the crime of perjury and is not allowed?

A. I understand.

Q. And you also understand that omitting any material information in response to a question is not allowed?

A. I understand that as well.

Q. Turning to the attachment, or Schedule A to the deposition, did you spend any time reviewing the specific requests for documents in Schedule A?

A. Yes, I did review it. Yeah.
Q. How much time did you spend reviewing Schedule A?
A. I can't tell you exactly, but probably 10 or 15 minutes.
Q. Okay. And then on Page 5 of Schedule A, there begins a section entitled Requests For Production.
Do you see that, sir?
A. Yes.
Q. Did you review those specific numbered requests for production?
A. Yes, I did.
Q. Did you search your files, your records, your email accounts, and anywhere else there may be responsive materials for the requested documents?
A. Yes, I did.
Q. How long did you spend searching your files and materials and emails for the requested documents?
A. Again, I can't tell you very specifically, but probably somewhere in

the range of a half hour or so.

Q. Okay. And you've produced a copy of your CV, which we have. Thank you for that.

A. You're welcome.

Q. And in terms of your billing invoices, have you provided all your billing invoices to your counsel for production?

A. Yes.

Q. Do you know approximately how many invoices that was?

A. Maybe eight, nine; somewhere in that range.

Q. And following up on Request Number 3, I don't believe I saw a produced retention letter or a contract.

Do you have a written contract with the Department of Justice?

A. I know there is one, but I don't have one directly because there's an intermediary involved.

Q. Okay. Who's the intermediary?

A. Versed Experts.

MS. ELLISON: And just for the record, I believe we did produce contracts. If you didn't receive them, we can follow up after, but --

MR. DOWLING: That's fine.

MS. ELLISON: -- if they were unintentionally omitted. Yeah.

MR. DOWLING: I'm not suggesting they were intentionally omitted. I just -- I did not see them. It's possible they were in the production.

BY MR. DOWLING:

Q. But to be clear, you do believe there's a contract between an entity and the Department of Justice, and you are working under that contract?

A. Correct.

Q. And are you an employee of that entity?

A. No.

Q. You're a consultant?
A. Consultant, expert; whatever.
Q. And is this entity -- describe the entity for me.
A. As best as I understand them, they act as a go-between as far as seeking experts in various medical issues. And I've worked with this team a number of times --
Q. Okay.
A. -- over the years.
Q. How many times do you think you've worked with them?
A. Oh, probably 15, 20 times, easily. I know the principal. I certainly have worked with him.
Q. Okay. And can you describe your financial arrangement with that entity?
A. Sure. They compensate me on an hourly basis subject to invoices I send to them, and then I believe they reimburse them. And they must take some

percentage; I don't know exactly what that is.

Q. So you're not aware of the details of how the entity itself is compensated?

A. No. I don't know the exact details.

MS. ELLISON: And I should clarify just for the record because I don't -- I want to make sure I didn't misstate anything.

To the extent that there are any contracts between Dr. Gollomp and the United States, they would have been produced, but that was how Number 3 was interpreted and responded to.

MR. DOWLING: Okay. Thank you.

BY MR. DOWLING:

Q. In regards to the work you did to search for responsive documents, did you search your email account?

A. Yeah, I did, actually.

Q. And did you find any responsive documents?

A. Nothing specific outside of what we already know.

Q. Okay. And I'm not asking about emails to the lawyers at the Department of Justice.

A. Oh, okay.

Q. But did you find any emails with anyone else that would be responsive to these requests?

A. No. No.

Q. Okay. Is this the first engagement you've had, whether with Versed or not, where you've done work for the benefit of the United States?

A. Yes, it is.

Q. It's Versed, right, is the --

A. Yeah. Yeah, it's Versed. I think that's how they pronounce it. And they changed their name recently and they moved their office. I don't know exactly where their office is. I've never set

foot there.

Q. Okay.

I'm going to hand you a number of other exhibits just to speed things up, if you'll bear with me for a second.

MS. ELLISON: And, Mike, I don't believe Number 3 was handed to Dr. Gollomp. I don't know if you intended --

MR. DOWLING: Did you -- I thought I had an extra. That would explain it. I've got one here. Sorry about that.

THE WITNESS: That's all right.

BY MR. DOWLING:

Q. Did I give you 5 yet?

A. No.

Q. What did I do with the other ones? I'm going crazy here.

MR. DOWLING: Can we go off the record real quick? I just need to get my documents in order.

THE VIDEOGRAPHER: Going off the record. The time is 9:14 a.m.

(Whereupon, a discussion was held off the record.)

THE VIDEOGRAPHER: We are now back on the record. The time is 9:15 a.m.

BY MR. DOWLING:

Q. Dr. Gollomp, I've handed you a number of exhibits that have been premarked as Exhibits 2 through 7.

Do you have those in front of you?

A. Yes, I do.

Q. Okay. And just very briefly, do you recognize the document that's been admitted as Exhibit 2?

A. Yes.

Q. What is that document?

A. That is the expert report I issued on Diane Rothchild.

Q. Okay. And is this expert report a complete and accurate written statement of the opinions you hold as of

today's date regarding Diane Rothchild?
A. Yes.
Q. And do you have in front of you Exhibit 3?
A. Yes.
Q. Now, I'll state for the record that this is a portion of Exhibit 3, the first three pages, because the remainder of Exhibit 3 is over 130 pages of Bates-stamped documents.
But subject to that explanation, do you recognize Exhibit 3?
A. Well, I recognize many of the things -- many of the reports it's citing and the names of the authors. So, yeah, I do recognize it, not necessarily in this specific format because I've seen the bigger document.
Q. Okay. Exhibit 3, the title is, Stephen Gollomp, M.D. - List of Materials Considered, and there are a series of bullet points listed here.
Did you make this document?
A. I did not make this document

myself, no.

Q. Do you know who made this document?

A. I do not know.

Q. Did you review this document at any time before I handed it to you a few minutes ago?

A. I have not seen this document in this form before, though I'm very familiar with what the report's citing.

Q. What form of this document have you seen before?

A. The full -- full hundred-somewhat page compilation.

Q. So in other words, with the 130-page listing of Bates stamps afterwards?

A. Yes. Yes.

Q. I guess what I'm asking is did you sit down at some point in the past --

A. Uh-huh.

Q. -- and type up this portion

of this document?

A. No. That's what I'm saying, is I didn't type up this portion of the document.

Q. And you don't know who did?

A. I'm not sure, no.

Q. And did you have any input into creating this portion of this document?

MS. ELLISON: Objection.

To the extent that it has to do with any communications that we had, I'll instruct you not to answer.

But if you can answer without discussing anything we discussed, you're free to.

THE WITNESS: Yeah.

Like I said, I'm not sure how this was generated. I certainly recognize all of these documents cited, but I did not type this compilation.

BY MR. DOWLING:

Q. Is it fair to say that this was not a part of the work that you billed anyone for, creating this document?

MS. ELLISON: Objection; form.

MR. DOWLING: What's your objection?

MS. ELLISON: Form?

MR. DOWLING: Yeah.

MS. ELLISON: I didn't understand your question.

MR. DOWLING: I'll repeat it.

BY MR. DOWLING:

Q. Is it fair to say that you did not bill anyone for generating Exhibit 3?

A. That is correct.

Q. And you said that you recognize these materials, I think, generally. Is that how you testified?

A. Oh, I recognize almost all of them very specifically.

Q. Is that from -- in what context do you recognize these materials?
A. Because I reviewed them; again, a much larger, full compilation.
Q. Okay.
Do you have Exhibit 4 in front of you? Do you recognize Exhibit 4?
A. Yes, I do.
Q. Okay. What is Exhibit 4?
A. Exhibit 4 is referencing medical records on Diane Rothchild.
Q. Okay. And this is entitled a Supplemental List of Materials Considered.
A. Uh-huh.
Q. Did you generate the document that is reflected in Exhibit 4?
A. No. No, I did not generate it.
Q. Do you have in front of you Exhibit 5?
A. I do.
Q. Do you recognize Exhibit 5?

A. I do.
Q. What is Exhibit 5?
A. Exhibit 5 is my expert report on Robert Welch.
Q. Is your expert report on Robert Welch a complete and accurate listing -- does it reflect a complete and accurate listing of your opinions that you hold regarding Mr. Welch as of today?
A. Yes.
Q. Is there any material information that you did not include in this report?
A. No.
Q. Is there any material information that you did not include in Ms. Rothchild's report, which is in Exhibit 2?
A. No.
Q. Turning to Exhibit 6, do you recognize Exhibit 6?
A. Again, similar to what I said about Exhibit 3, I definitely recognize the materials that this listing

cites, but I did not generate this specific bullet-pointed listing.

Q. Okay. And you don't know who did?

A. No, I do not.

Q. And again, for the record, Exhibit 6, which is entitled Stephen Gollomp - List of Materials Considered, it's a portion of your materials considered, but there's, I believe, over 200 pages in addition to this one that, for the sake of the environment, I did not print out and admit here.

But suffice it to say you recognize the materials on this list?

A. Yes. Yes, and I recognize the bulk -- you know, the size of the materials that this is attempting to make sure we have a catalog of, actually.

Q. Okay. And, finally, Exhibit 7, sir. Do you recognize Exhibit 7?

A. Yes.

Q. What is Exhibit 7?

A. Again, Exhibit 7 is

referencing medical records particularly from Kaiser -- but not just on Kaiser, but mostly since that's where Mr. Welch got most of his medical care -- in reference to Mr. Welch.

Q. And did you provide any input or do any of the work to generate Exhibit 7?

A. No, I did not generate Exhibit 7.

Q. Okay. Tell me how you got involved in the case, Dr. Gollomp.

A. Yeah. I was approached by Versed to become involved in this case, and I'm going to guesstimate it was probably sometime in the fall of '24. It may have been early '25. I don't remember the exact dates, but somewhere in there.

Q. And who approached you at Versed?

A. Oh, I don't remember specifically. I don't remember specifically. I know several of the

members of the team there and I've worked with them before, and I can't remember off the top of my head.

Q. Are the people at Versed -- are they, themselves, doctors, or do they --

A. No. No.

Q. And was the person who approached you someone you'd worked with on a prior case?

A. Oh, I'm sure of it. I'm sure of it.

Q. And do you recall what was said during the initial conversation in the fall of 2024?

A. Yeah, I do. They said to me they were looking for an expert in Parkinson disease. They had -- there had been a relationship with another expert who could no longer participate, and they asked me if I would be able and willing to participate and assist.

Q. In that initial conversation, did the individual at

Versed tell you that it would be -- the work would be for the Department of Justice?

A. Yeah, he told me. Yeah, sure. Sure.

Q. And did he indicate to you the nature of the assignment?

A. Yeah. He gave me a rough idea, for sure.

Q. Did he in any way indicate to you that the client, the Department of Justice, was looking for an expert specifically to rebut the Plaintiffs' allegations in this case?

A. Well, I don't know if he framed it that way, but he said they were looking for an expert to analyze the cases.

Q. And so there was no suggestion to you one way or another as to what kind of opinion they were looking for from your perspective? They could have been looking for a plaintiffs' --

MS. ELLISON: Objection;

form.

BY MR. DOWLING:

Q. From your perspective, they could have been looking for a plaintiff's position?

A. Well, I didn't appreciate that it was from the plaintiffs' position. I thought it was from the defense position -- also because I know Versed usually does defense type of things. So I pretty much figured that out.

Q. Okay. So even if it wasn't like, hey, expressly, we need you to testify for the defense, you sort of understood that's what this assignment would be?

MS. ELLISON: Objection; form.

THE WITNESS: Yeah, I assumed it was probably the case having had a relationship with them before.

BY MR. DOWLING:

Q. Okay.

And so do you remember when in the fall, what month that would that -- that contact would have happened?

A. I'm thinking November/December time frame. If it wasn't then, it would have been January. I just don't remember exactly.

Q. Okay. And did you take any time to consider whether to take the assignment, or did you accept right away?

A. No. I thought about it for a couple of weeks.

Q. And what did you think about during those weeks?

A. Well, I thought about the time commitment involved and whether I could do it, whether I could fit it into my schedule.

Q. And just briefly -- I'm sure you are a busy guy -- but were you concerned about whether you had the resources and the capacity to do the assignment?

A. Well, I know I have resources; I know I have the capacity. I just didn't know if I had the time.

Q. Fair enough. And that was a bad question on my part.

But why did you feel like you may not have the time to do it?

A. Well, I'm a busy clinician, even though I'm not as busy as I once was earlier in my career because I've chosen to cut back somewhat, but -- and I have, obviously, many obligations, both clinical as well as administrative as well as consulting work that I do both for the pharma industry as well as for the legal world, both defense and plaintiffs, and I just didn't know if I could make it all work.

Q. Okay. So let's break that down, then, so that -- this is my one bite at the apple.

A. Yeah, yeah. I hear ya.

Q. I'd love to figure out what your professional life entails.

So you, obviously, are doing consulting work in a legal capacity?

A. Absolutely.

Q. That's what you're doing here today?

A. Right.

Q. Is all of your consulting work through Versed?

A. Oh, no. Not at all.

Q. Do you do consulting work for other independent law firms?

A. Yes.

Q. Are those defense law firms or plaintiffs' firms?

A. Both.

Q. Both. And --

A. Including this one that we're sitting in.

Q. You've done work for this Anapol Weiss firm?

A. Uh-huh. Sure.

Q. And what percentage -- and, obviously, this is something that -- you didn't bring your general ledger in

here -- but what percentage --
A. Yeah. I'm not sure I would know, actually, but that's okay.
Q. What percentage from just your best good faith estimate of your professional time is spent on legal consulting?
A. Probably about 10, 15 percent.
Q. Okay. And you said, then, you're a clinician as well?
A. Yes.
Q. A medical doctor?
A. Yes.
Q. A practicing neurologist?
A. Correct.
Q. And what percentage of your time is spent in that capacity, your professional time?
A. About 80 percent.
Q. Eighty percent. Okay.
And then there's a residual small amount of time that you're doing something else?

A. Yeah. Yeah. I do consulting to pharma and the medical device industry.

Q. Okay. And what's the nature of that consulting?

A. Both direct scientific consulting as well as speaking for them as well as a certain amount of research and reviewing of data.

And what I left out was, of course, publications. I'm the editor of a journal called Practical Neurology, and I spend it -- it depends on the amount of time I need to spend, but I'm certainly involved in that as well reviewing the panoply of what's going on in neurology and helping to get it out there.

Q. In terms of -- so you have an employment relationship with pharma companies?

A. Consulting.

Q. Consulting?

A. Yeah.

Q. So they issue you a 1099?

A. Yes.
Q. Okay. Is it more than one pharmaceutical company?
A. Oh, yeah.
Q. How many pharmaceutical companies?
A. Let me think for a second. That obviously varies depending upon the ebb and flow of the pharmaceutical industry, but at this time, probably about three or four, and then two -- two or three device companies right now.
Q. When did you start consulting for either pharmaceutical companies or medical device companies?
A. Over 40 years ago.
Q. And so you've consistently, over the course of 40 years, provided consulting services to the pharmaceutical industry and to the medical device industry?
A. Oh, yeah. Sure.
Q. Do you have a sense of how much in terms of gross income you've

generated from that consulting work?
A. Over what time frame?
Q. Over the 40 years that you've done it.
A. I have -- I have no idea, Mr. Dowling, but -- you know, I have a rough idea on an annualized basis; but over 40 years, I have no idea.
Q. Can you give us a rough idea on an annualized basis?
A. On an annualized basis, it probably comes out -- the consulting work comes out between 50 and 100K a year.
Q. Just for the pharma and medical device?
A. Yes.
Q. And then in terms of your legal consulting which you do, do you have a sense of, on an annualized basis, how much income you generate from that?
A. Yeah. Probably in the same range.
Q. And in terms of your neurology practice, on an annualized

basis, how much income are you generating from that?

THE WITNESS: Am I required to answer that?

MS. ELLISON: Yes.

And I'll just say it now, is that we'll mark this as confidential after the fact so that -- just so that you're aware and we have it on the record.

But, yes, answer the question.

BY MR. DOWLING:

Q. I'm not trying to --

A. No, no. And I just know from prior litigation, I know that I don't have to answer that question. That's why I was asking that.

Q. So for the record, we think it's relevant just to establish, you know, what your financial interests are. That's always --

A. Sure.

Q. -- fair game for any

witness.

A. Yeah. Yeah. So do you want to know the gross income of the practice, then?

Q. I would like to know -- so you're a partner in the practice?

A. I'm the sole proprietor. I am --

Q. You're the sole proprietor. So what's your net income?

A. Okay. That's fair. It's 450K.

Q. And that's an approximation?

A. Yeah, that's an approximation. I happen to know my fiscal year just ended, so I have a pretty rough idea of what that number is.

MS. ELLISON: And I'll just say it again just so we have a clean record, we'll just mark that area as confidential after the fact.

MR. DOWLING: Of course. And I -- yeah. We don't have any

dispute about that.

BY MR. DOWLING:

Q. So in reviewing your invoices -- and I did not bring them here today -- but I saw an invoice issued February 5th, 2025; February 28th, 2025; March 31st, 2025; April 30th, 2025; May 31st, 2025; and June 30th, 2025. So about six invoices.

Does that comport with your recollection of how many invoices you've issued?

A. It sounds -- it sounds about right. I think I overestimated, actually, when you asked me earlier, but that's definitely in the ballpark for sure.

Q. And I added those invoices up and came up with an amount just over $31,000 in terms of billed time under those invoices.

Does that sound consistent with your recollection of how much time you've billed the Government?

A. Yeah, that sounds about right.

Q. Is the 31,000, roughly, that you billed the Government in this engagement -- is that solely related to Mr. Welch and Ms. Rothchild's case, or is there other work that you performed for the Government outside of that?

A. No, there's no other work outside. It's all related to this case.

Q. And so there's no other cases that you've consulted with the Government on?

A. No.

Q. Do you have any unbilled time? I mean, you must if you prepared for this deposition.

But beyond preparation for this deposition, do you have any unbilled time that you are going to submit to the Government in the near future?

MS. ELLISON: Objection; form.

THE WITNESS: Yes, and I

don't know exactly what that number is because it's obviously very, very recent.

BY MR. DOWLING:

Q. Okay. All right.

Are any of the -- strike that.

How many pharmaceutical companies over the course of your career did you say that you've consulted for?

A. Well, I don't think you actually asked me, and I'm not sure I can give you a precise answer because many of them have been acquired or changed names or don't exist anymore --

Q. Okay.

A. -- and many of them I've done research on. I've done many research projects that have been sponsored by pharma.

But I would guesstimate in the neighborhood of 25 or 30.

Q. And are you able to identify who some of those companies are?

A. Oh, sure.
Q. Can you tell me who they are?
A. Yeah. Sure. Right now, I'm actively working with Neurocrine of -- I guess they're out of San Diego or near San Diego. I'm trying to think who else. I'm working with Amneal.
Q. I'm sorry?
A. Amneal -- A-M-N-E-A-L.
And who else am I working with right now? I'm working with Merz, -- M-E-R-Z -- and I'm working with -- I have been doing some work with AbbVie -- A-B-B-V-I-E.
And I think those are the ones I have active relationships with right now.
Q. And generally speaking, are these pharmaceutical companies ones that research and manufacture pharmaceuticals for the treatment of neurological disorders?
A. Yes; all of them.

Q. All of them?

Do you work for any pharmaceutical companies that research or manufacture pharmaceuticals for anything other than neurological disorders?

A. I don't think so. No, I don't believe so.

Q. Do you know if Neurocrine, Amneal, Merz, or AbbVie -- any of them are affiliated in any way with any other entities, any larger entities?

A. No. They're pretty big themselves, so -- they're all pretty independent. Merz is privately held; Amneal, I'm not sure if they're publicly traded; AbbVie is very big, and they've acquired Allergan with whom I used to have a relationship, so -- they own Allergan now; and Neurocrine is publicly traded, but they're independent.

Q. Have you ever done any work for any company or person or entity in -- strike that.

Have you ever done any work

for a company that researches, manufactures, or distributes solvents?

A. No, I haven't.

Q. What is the nature of the speaking engagements that you indicated you do on behalf of pharma companies?

MS. ELLISON: Objection; foundation, form.

BY MR. DOWLING:

Q. What's the nature of the speaking engagements -- I'll withdraw the question.

Can you recall any of the topics for the speaking engagements that you've conducted for pharmaceutical companies?

A. They basically -- when I've actually been speaking, the vast majority have been promotional for that specific product --

Q. Okay.

A. -- when I've actually spoken publicly.

Q. And who are the typical

audience members that you're speaking to?
A. Other physicians.
Q. Is the hope and intent, obviously, that these physicians will then prescribe those medications?
MS. ELLISON: Objection; form.
BY MR. DOWLING:
Q. You can answer.
A. Yes, obviously.
Q. Do you usually do a speaking engagement if you've done research on that particular drug, or are you brought in after the research is done? If there is a normal rhyme or reason to it, how does it typically work?
A. Yeah, that's interesting. It goes both ways.
Q. So there are times when you do the research, the pharma company pays you to do that, and then you do a speaking engagement to promote the drug?
A. Yes, it does happen, for sure.

Q. And then there are times when some other researcher does the research and then you are paid to promote the drug to practitioners?

A. Yeah.

Q. Okay. Have you -- and I don't mean any offense by this, but --

A. Sure.

Q. -- have you ever been charged with a crime other than a traffic offense?

A. God forbid. None of the above.

Q. No traffic offenses? That's impressive.

A. Well, maybe one, one speeding ticket on Route 5 in Washington State 30 years ago on a Sunday morning.

Q. Fair enough.

Have you ever been investigated by any kind of professional licensing board?

A. No.

Q. Have you ever been

investigated by any kind of hospital or medical group?

A. No.

Q. Have you ever had -- have you had a complaint or a grievance filed or lodged by a patient against you?

A. No.

Q. Have you ever had your ability to practice medicine suspended or restricted in any way?

A. No.

Q. And how long have you been a licensed medical doctor?

A. Since -- well, my first license was in Massachusetts in '77; so 48 years.

Actually, I'm sorry. I misspoke. First license -- yeah. No. It would have been in the state of New York in '77.

Q. And you have an active license in the Commonwealth of Pennsylvania?

A. Yes.

Q. Do you have any active licenses anywhere else?

A. No. I have inactive licenses in Massachusetts, New York, and Delaware.

Q. Have you ever been a party to a lawsuit?

A. Yes.

Q. How many lawsuits have you been a party to?

A. Over that time, I think it's eight.

Q. Were you a plaintiff or a defendant in these lawsuits?

A. Defendant.

Q. Always?

A. Yes.

Q. Can you tell me what you recollect about the lawsuits? And if you want to just go one by one.

A. Sure. As best as I can recollect, sure, because they all go back quite a-ways.

Q. When was the first one,

where was it, and what was the nature of the lawsuit?

A. Sure. The first one was in the early 1980s, and it was for a woman who died of staphylococcal septicemia from an IUD, and, obviously, a very tragic thing. So I remember that. I know that settled.

Q. Were you her treating physician?

A. I was the treating physician at the time.

Q. Were you deposed in connection with that?

A. Yes.

Q. Did the case go to trial?

A. No.

Q. Oh, you said it settled. I'm sorry.

A. Yeah. That's all right.

Q. And essentially, the allegations were that there was negligence in the provision of care to her?

A. Essentially, that's correct.
Q. What about the next one?
A. The next one that I remember was a young man -- well, he wasn't so young at that point -- who had a -- who had disabilities who had a what's called "ventriculoperitoneal shunt" in his brain, and that shunt failed. And I actually don't remember exactly what happened to him.
And I was a secondary defendant in that case. I wasn't the primary treating doc, but I was named in that case. And that was sometime in the early 1980s as well.
And then --
Q. Can I stop you just to ask a follow-up on that one?
A. Yeah. Sure. Sure, sure.
Q. When you say "secondary defendant" and there was another physician involved, what was --
A. The neurosurgeon --
Q. The neurosurgeon?

A. -- was named, and I think the primary defendant.

Q. And so in this particular instance, there was a surgical -- a surgery, and something happened after that surgery?

A. No, I don't think it was that. I think, if I remember -- again, the details are hazy, but the shunt had been put in and there was a failure of the device, and something amiss happened when the surgeon tried to fix it or didn't fix it. Again, I don't remember all the details.

Q. Okay.

A. And I happened to be the fellow's neurologist, and I got swept in on that.

Q. And were you deposed in connection with that case?

A. I'm pretty sure I was.

Q. Did that case settle?

A. I know it did. I don't know if it went to trial for the surgeon, but

I know I was not involved.

Q. And regardless of whether you admitted it or not, the allegation there was that you were negligent in providing care to this patient?

A. Yes.

Q. Same for the first?

A. Yes.

Q. The first case. I should be clear. I'm sorry.

A. Yeah, yeah. I know what you meant.

Q. Okay. How about the third one, to the extent you can recollect?

A. I believe that one was, again, sometime in those years, in maybe the mid-1980s. A woman had some type of surgical procedure. I keep thinking it was an ulnar nerve transposition, but I'm not sure. And she had an anoxic event and was left brain damaged. And I actually was called in after the fact, but was named in the case.

And I know that case

settled, but I don't -- I don't think I was actually even, you know, directly involved in that settlement at all.

Q. But you were a named party in that?

A. Yes. Yes.

Q. And the allegation was that you had been negligent in providing care to her?

A. Yeah, in some manner or another even though I came into the case after the event happened. And I can't remember if I was involved in a deposition or not --

Q. Okay.

A. -- but...

Q. Were -- all of these cases that we're talking about, were you affiliated with the same medical group at that time?

A. Well, I wasn't -- let me think for a second.

I think in all of the cases, I was independent, so there weren't any

other physicians directly affiliated with me at that time.

Q. And so the entity that was doing business was just Stephen M. Gollomp, M.D.?

A. Uh-huh. M.D., P.C., yeah.

Q. How about the fourth one?

A. Yeah. Let me think. I'm probably not remembering them all anyway. Yeah, I'm sorry. I don't remember any of the details of that one.

Q. Do you remember the details of numbers four, five, six, seven, or eight?

A. Yeah, I remember the eighth because that was the most recent one, and that was -- that's the only one that went to trial. And that went to trial, I guess, in 2018 or '19.

Q. Okay. And where was that case filed?

A. It was filed in Montgomery County, Pennsylvania.

Q. What were the names of the

plaintiffs?

A. Leach -- L-E-A-C-H. And the case was an allegation of failure to diagnose a condition called Wilson's disease -- W-I-L-S-O-N.

Q. What is Wilson's disease?

A. It's an inherited neurodegenerative disease involved with excessive accumulation of copper in the body.

Q. And that case went to trial?

A. It did.

Q. You were represented by counsel?

A. I was.

Q. Were there any other defendants?

A. Yes. There were several. Kelly Geary -- G-E-A-R-Y -- and --

Q. What is Ms. Geary?

A. She's a neurologist.

And then there was May Donovitch -- M-A-Y D-O-N-I -- or N-O -- V-I-T-C-H. He's a generalist. He's

retired now.

And there was one other generalist. And I can visualize him, but I can't remember his name.

Q. And was -- the plaintiff's last name was Leach?

A. Uh-huh.

Q. Do you remember the first name?

A. Kerry, I think. Kerry or Kelly. Either K-E-R-R-Y or K-E-L-L-Y.

Q. And who was she represented by?

A. A law firm by the name of Phillips in the Pittsburgh area.

Q. What was the result of the trial?

A. A defense verdict.

Q. So a complete defense verdict?

A. Yes.

Q. Do you understand -- was it a finding of no liability at all?

A. Correct.

Q. And has that case resolved? It's not on appeal or anything?

A. No. It's long resolved.

Yeah. Sorry. I can't remember details of the others. Nothing else has ever gone to court, so...

Q. Were the other ones all in the Pennsylvania court system?

A. Yes. And they all date back before the mid-naughts; so before 2003, 2004; or they may have just not even been in the 2000s at all. They date back a long time.

Q. In the Leach case, you understood the theory to be a failure to diagnose a disease; correct?

A. Yes.

Q. Was that a theory in any of the other cases?

A. No. No.

Q. What were the theories in the other cases the best you recollect them?

A. It was more failure --

negligence kind of questions. And again, I don't remember the details, but it wasn't a failure to diagnose.

Q. Some other kind of failure?

A. Right. Right.

Q. Have you seen or heard legal advertisements regarding contaminated water at Camp Lejeune?

A. I probably have.

Q. In what context?

A. Just on television.

Q. Do you have any opinion about the legal advertisements that you've seen regarding the contaminated water at Camp Lejeune?

A. None.

Q. Have the advertisements in any way affected your view of the Camp Lejeune water contamination?

A. No.

Q. In one way or another?

A. Correct; neither way.

Q. Dr. Gollomp, you have testified that you've provided legal

consulting services to lawyers in the past; correct?

A. Correct.

Q. And so you've written expert reports in other cases in addition -- aside from this one?

A. Oh, yeah. Of course.

Q. How many expert reports do you think you've written over the years in the legal consulting?

A. Yeah, yeah. No, I understand the context of the question.

I mean, it numbers into the hundreds --

Q. And --

A. -- over the 40-year time frame.

Q. -- those are expert reports where you're giving an opinion about a case?

A. Correct.

Q. Have you -- well, do you consider yourself an expert in toxicology?

A. No.
Q. Do you consider yourself an expert in genetics?
A. No, not specifically.
Q. In what way do you consider yourself an expert in genetics?
A. Well, relative to neurologic disease, I am extremely versed in the genetics of neurologic disease.
Q. Based on your review of scientific literature?
A. Both review of scientific literature as well as my ongoing practice where genetics plays a very heavy role in many neurologic diseases.
Q. Did you receive any education on topics related to genetics at any point in time?
A. Oh, yeah. Of course.
Q. When would that have been?
A. Certainly in medical school, but that's a long time ago, and anything that went on then in genetics is long out-of-date. And of course I've attended

lectures on genetics at various professional meetings, read any one of a number of journals about that, and even edited -- in Practical Neurology, edited and reviewed publications we've had on genetics and neurologic disease.

Q. Have you ever authored an expert report in which you held yourself out to be an expert in genetics?

A. No, not specifically. No.

Q. Have you ever sought or been qualified by a court as an expert in the subject of genetics?

A. Not in the broad sense, no.

Q. Do you consider yourself an expert in epidemiology?

A. No.

Q. Do you consider yourself an expert in risk assessment?

A. Not specifically, no.

Q. How do you -- what do you mean by that?

A. Yeah. I mean, when you drill it down in particular diseases,

particularly neurologic diseases -- for example, stroke, to a lesser degree heart disease -- that's part of the routine practice for a neurologist who's doing -- who's taking care of people with stroke and vascular disease.

Q. So my question was about risk assessment, and let me just make sure I understand what you're saying.

Are you saying that your knowledge of stroke and heart disease gives you a basis to opine about risk assessment?

MS. ELLISON: Objection; form, foundation.

THE WITNESS: I meant very specifically in that realm of vascular risk disease.

BY MR. DOWLING:

Q. Okay. What about -- are you -- do you consider yourself an expert in environmental exposures?

A. No.

Q. Do you consider yourself an

expert in matters involving water contamination?

A. No.

Q. Have you ever authored an expert report dealing with water contamination?

A. No.

Q. And you've never testified as an expert on the subject of water contamination?

A. No.

Q. So this is your first case in which you've worked on matters of water contamination?

A. That is correct.

Q. Separate from water contamination, any kind of toxic exposures, have you ever provided an expert opinion in connection with some other kind of toxic exposure to a toxic substance?

A. Can you say the question again?

Q. Sure.

So putting aside contaminated water --

A. Right, right, right.

Q. -- have you ever provided an opinion related to the subject of toxic exposure and Parkinson's disease?

A. Well, certainly not in that realm.

And what I was wondering, whether you were asking me about a medical situation where I've commented on toxic exposure versus legal situations.

Q. So right now, I'm focusing on just your legal --

A. Okay.

Q. -- expert work, whether consulting or testifying, and I'm trying to put to one side the subject of toxic water contamination.

A. Right. Understood.

Q. And then I'm trying to get to every other type of toxic substance that someone could be exposed to.

Have you ever provided an

expert opinion about any other toxic substance?

A. Legal realm?

Q. In the legal field.

A. No.

And the reason why -- and I'll clarify why I'm saying that, is that I definitely have seen consequences of toxic exposure, not legally in the setting of -- for example, the most common thing I see is chemotherapy for cancer where I've seen lots and lots -- and, you know, it's not a legal thing. It's just the patient has a toxic neuropathy or cerebellar damage or that kind of thing.

So I definitely have seen and commented clinically on neurologic consequences of toxic exposure.

Q. And so that's in your capacity as a treating neurologist?

A. Correct.

Q. And you just gave the example of chemotherapy.

A. Yes.

Q. So let's shift over to as a practicing neurologist again.

What other types of toxic-induced neurological disease have you seen in your clinical practice?

A. Sure. Another very common thing, the development of tardive dyskinesia from certain psychiatric drugs, not an uncommon thing. And I can -- and most people would consider that a toxic reaction.

Various neuropathies from alcohol, from chemicals from chemotherapy in particular. Cerebellar damage from various medications I've certainly seen. Even medications we use for seizures can sometimes cause chronic damage to the nerve and to the balance mechanism, et cetera.

So this is the kind of thing as a practicing neurologist I've seen many times in my career and feel very, very competent to talk about.

Q. And there's a lot of different types of substances that you've seen that have caused neurological diseases in your patients?

A. Yes, for sure.

Q. How many patients -- shifting back over to your role as a treating physician --

A. Uh-huh. Sure.

Q. -- how many patients have you treated over your career with Parkinson's disease?

A. Several thousands.

Q. And you just testified that you have, in fact, treated patients with -- well, have you treated patients with Parkinson's disease --

A. Uh-huh.

Q. -- that you have believed to be induced by some toxic exposure?

A. Not that I can specifically speak to, no.

Q. So you've seen thousands of patients over your career?

A. I have.
Q. And you testified a moment ago that you've seen many different toxic substances cause various neurological diseases.
A. Correct.
Q. But in those patients, you've never seen a patient whose Parkinson's disease was induced by toxic exposure?
A. That is correct. I've wondered about a few where the psychiatric drugs might have induced Parkinsonism and might have caused chronic toxicity, but that's about the only example I can point to -- type of example that I can point to with any assurity. I've not seen anything else that I can point to over the thousands of patients over 40 years that I can say unequivocally that's been induced by a toxic exposure. And I've seen a lot of patients through the years.
Q. I'm sure.

A. And I continue to see many hundreds with Parkinson's alone.

Q. You can't think of a single instance in which you saw any toxic substance-induced Parkinson's disease in any of your patients?

MS. ELLISON: Objection; form.

THE WITNESS: That is correct, outside of what I just mentioned.

BY MR. DOWLING:

Q. Have you ever spoken to any of your colleagues in the medical community about toxic substances causing Parkinson's disease?

A. Yes.

Q. Have any of those individuals commented to you that they have treated individuals with toxic-induced Parkinson's disease?

A. Yes. Sure.

Q. Is that a common thing that you've discussed over the years?

A. Well, not so much now. But in the early to mid-1980s when Bill Langston was first reporting the patients with MPTP-induced Parkinsonism, that was something that -- you know, I have known Bill and his colleagues, and that was certainly a very high topic of conversation for a good decade, or more, actually, and still somewhat of a topic of conversation, but not so much now.

Q. Do you believe acute MPTP exposure causes Parkinson's disease?

A. In the right individual with the right dose, yes.

Q. What is MPTP?

A. I do not -- I cannot recite for you what MPTP stands for today.

Q. Are you familiar with this -- I guess it was a case study that happened during that time period you're referencing where some individuals were exposed to MPTP?

A. Yeah. It was about Dr. Bill -- William Langston's work at that time.

Q. And what was the general, to the best of your recollection, gist of what happened there?

A. Yeah. I mean, the gist was there were a series of people who were addicted to heroin who received a batch of -- I'm not quite sure. I don't remember the details of how this all happened, but they received some type of artificial opiate and it was contaminated with MPTP.

So it wasn't actually heroin proper, but they were heroin addicts, and they received some type of synthetic substitute. It wasn't fentanyl. I don't remember now what it was. And MPTP was an inadvertent contaminate of that material that these people received.

And they developed true Parkinsonism within a period of as quickly as several days to weeks, if I remember the reports.

And again, this is sketchy. This was, you know, reported a long time

ago.

THE COURT REPORTER: Doctor, can you keep you voice up for me?

THE WITNESS: Oh, I'm sorry.

THE COURT REPORTER: Thank you.

THE WITNESS: Yeah. Maybe I should take a swig.

BY MR. DOWLING:

Q. And in your career, that was obviously a significant event and was likely discussed in the neurology circles; correct?

A. Oh, yeah.

MS. ELLISON: Objection; form, foundation.

BY MR. DOWLING:

Q. You said "oh, yeah"?

A. Oh, yeah. Very much so.

Q. Do you recall any discussions subsequent to that event about the mechanism of how the MPTP caused the Parkinsonisms?

A. Yeah, I do.

Q. What was the mechanism of action?

A. Well, the mechanism of action was MPTP was converted to an ionized form of MPP+, so an anion, and that anion bound to -- I think it was complex I in the mitochondria, and impaired the mitochondrian metabolism of the substantia nigra cells.

Am I getting too technical?

Q. I need you to get a little technical there, but --

A. Okay.

Q. -- no. That's fine. Thank you.

A. Okay.

And by poisoning the mitochondria in these highly metabolic cells, it caused them to die off prematurely. So that was a real simplification.

Q. The MPTP, through some complex chemical interactions --

A. Specifically complex I of

the multiple complex molecules in the mitochondria. I can go on and on and on.

Q. That's fair.

But for -- and if you think my characterization isn't fair, just tell me, but --

A. Sure.

Q. -- for layman's terms, because we're not all going to have the experience you do.

The MTPT caused damage to -- was it dopamagenic [sic] cells in the -- or the mitochondrial cells in the substantia nigra?

A. Yeah. Let me try and clarify.

The mitochondria, which are the energy powerhouses of cells -- the mitochondria within the dopaminergic cells in the substantia nigra were essentially poisoned by this because their mitochondria failed, couldn't provide adequate energy for metabolism of those highly metabolizing cells, and

those cells died.
Q. And that mechanism of action is something you accept as a valid scientific truth?
A. Yes.
MS. ELLISON: Objection; form, foundation.
BY MR. DOWLING:
Q. That's a known effect of acute MPTP exposure?
MS. ELLISON: And same objection.
THE WITNESS: Yes.
BY MR. DOWLING:
Q. And are you aware of any other scientific research which has studied either that mechanism of action or similar mechanisms of action?
A. I'm not aware of anything that's been established, no.
Q. Are you aware of any studies that have analyzed that mechanism of action?
A. That specific mechanism of

action?

Q. Are you aware -- I'll clarify.

Are you aware of a researcher named Briana De Miranda?

A. No, I'm not aware of that person.

Q. Are you aware of --

A. I've heard the name, but I don't know exactly.

Q. Are you aware of any studies on mice, inhalation studies, in which mice were exposed to trichloroethylene, and there were studies inside the substantia nigra that showed cell death in the way that you've described?

MS. ELLISON: Objection; form.

THE WITNESS: I'd have to look back at those studies. I'm aware of some work in that department, in that area, but I don't recall them off the top of my head. And without reviewing

them, I couldn't comment.
BY MR. DOWLING:
Q. So you had not -- or you were not familiar with Dr. De Miranda's work until we just started discussing it right now?
A. I've heard her name, and didn't recall specifically what she had done.
Q. So you didn't know the substance of her studies?
MS. ELLISON: Objection; form.
THE WITNESS: Correct.
BY MR. DOWLING:
Q. Have you ever treated a patient with genetically-caused Parkinson's disease?
A. I believe I have, sure.
Q. How many?
A. Probably at least a half dozen.
Q. So six out of the thousands that you've treated?

A. Yeah, but let me clarify that a bit more. I would say that many as far as a specific gene that I suspected is abnormal. Obviously, I know you're thinking about Rothchild.

But as far as there being a heredity factor, which is not necessarily a genetic cause -- so I'm making a distinction here. There probably is a genetic predisposition in 10 to 15 percent of people with Parkinson disease.

Q. And so you believe the six patients you've identified fall into that former category where you thought they had the specific gene that induced Parkinson's?

A. Correct.

Q. But if I understand your testimony correctly, you believe, based on scientific literature, that there's a slightly broader class of individuals that have a heredity factor that could contribute to their Parkinson's disease?

A. That is correct. And as I

say, it's not simply slightly larger. Ten to 15 percent is a significant number.

Q. And when you identify -- or when we're talking about that group, the individuals where you don't have sufficient evidence that they have the gene but they have a heredity factor, what are some of the heredity factors that you're talking about?

A. Sure. First of all, just family history. I mean, clearly, I see people -- and this is separate from the 10 to 15 percent I'm going to -- I was referencing. There are clearly families in whom there is autosomal dominant Parkinson disease -- grandparent, parent, child, and baby even. I've had examples of a kid with Parkinson disease, and although we've never been able to identify a gene in that particular family, the family history is very compelling. But that group is relatively small.

Then there's the group where there are definitely other progenitors with the disease -- maybe an aunt or an uncle, maybe a grandparent, maybe a cousin -- which, in my mind and many of our -- within the field, our minds feel that that represents some type of risk loading for that particular individual.

Do you follow where I'm going with this?

Q. Yeah.

A. And then there are those people who carry specific genetic markers such as LRRK2, a LRRK gene as we call it, or those who carry glucocerebrosides, or the GBA gene, who are at higher risk of Parkinson disease, and that isn't necessarily causative but raises their risk.

Q. Is that --

A. And that's the 10 to 15 percent I'm actually specifically referencing.

Q. Is the Parkin gene one of

these genetic markers, or does that -- do you believe Parkin is a genetic cause?

A. Oh, Parkin is a separate identified genetic cause.

Q. Identified genetic cause?

A. That is more like in the six I was talking about.

Q. How many -- and what is Parkin?

A. It's one of the identified genetic mutations that appears to cause Parkinson disease.

Q. And the six patients that you've treated, how many of them had the Parkin gene?

A. I don't recall how many have actually done the genetic testing on to know for sure, but I believe at least one or two actually were Parkin positive, one of the Parkin genes.

And, of course, people don't always want to go genetic -- undergo genetic testing. They don't always want to know.

Q. This is helpful. You've established sort of two buckets where there's a genetic cause that you believe is a known cause, and then there are these heredity markers.

Under the first bucket -- this very small group of people, you would admit -- right?

A. Uh-huh.

Q. -- it's a very small percentage?

A. Yeah, it is a --

MS. ELLISON: Objection; form.

THE WITNESS: I'm sorry.

Yeah, it is a small group.

BY MR. DOWLING:

Q. Do those individuals also have genetic or heredity factors -- for instance, a mother, grandmother, father, whatever the sex -- present in their family tree?

A. I can't remember. I honestly can't remember. I don't know

for sure. I wouldn't be shocked if they did, but I just don't remember.

Q. So you can't rule out the possibility that if you have a known genetic cause of Parkinson's that you would also have -- I believe you testified, you know, autosomal -- what was the phrase?

A. Autosomal dominant.

Q. -- autosomal dominant representations in your lineage?

MS. ELLISON: Objection to form.

BY MR. DOWLING:

Q. Do you understand the question?

A. Yeah, I understand the question, but it's a little confounded because that autosomal dominant might be the Parkin -- one of the Parkin genes in that family, and I wouldn't necessarily be able to answer that question because I wouldn't necessarily have genetic testing on an antecedent who was no longer alive

--

THE COURT REPORTER: Genetic --

THE WITNESS: I'm sorry. -- not necessarily have genetic testing on an antecedent who's no longer alive. So that might be a question that's just unanswerable.

BY MR. DOWLING:

Q. But certainly if you have someone who you suspect has the Parkin gene --

A. Uh-huh. Sure.

Q. -- but they have not had genetic testing --

A. Correct.

Q. -- one fact that would strengthen your opinion that they have genetically caused Parkinson's disease is if there are other people in their family tree that have Parkinson's disease?

A. Sure.

MS. ELLISON: Just let me

object.

Objection; form, foundation.

BY MR. DOWLING:

Q. And again, in that same case, in the absence of these heredity factors in their family tree, that might tend to, relatively speaking, weaken your opinion about whether this is a genetic cause?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: Not necessarily because the presumption is either, A, based upon the clinical presentation, which obviously these genetic forms have many -- have a number -- not all of them, but a number of them -- very unique features that are very suggestive; and, B, the one thing that we sort of all forget about is paternity is not always entirely clear.

BY MR. DOWLING:

Q. Paternity is not entirely clear?

A. It is estimated by some people, including experts I know very well at the Children's Hospital of Philadelphia here in Philadelphia, a well-renowned institution, that upwards of 20 percent of people's paternity is not correct, not correctly identified, meaning that --

Q. Put a finer point on that for me.

A. Oh, I'd be glad to.

That the father -- typically, the father, the father that they suspect is their father is not their biologic father.

Q. And so you have that fact in the back of your mind when you're analyzing the strength of a genetic --

A. Yeah, I always wonder about it. There's no way, obviously, of necessarily sorting that out, but it is a fact that, you know, is known that

paternity is sometimes questionable.
Q. Gotcha.
A. A little-known fact.
Q. Yeah, that is a little-known fact.
Have you published or lectured on solvent exposure and its relationship to Parkinson's disease?
A. No, I have not.
Q. Have you evaluated or treated any other patients involving trichloroethylene, perchloroethylene, vinyl chloride, or benzene exposure and Parkinson's disease?
A. No, I have not.
Q. So for all you know, none of your patients have ever been exposed to trichloroethylene?
A. Well, as far as I know, that's the case.
Q. And the same for perchloroethylene?
A. Correct.
Q. Do you understand -- if I

happen to shift into TCE and PCE, you understand what I'm talking about?

A. Absolutely.

Q. And so is this the first time in which you've been asked to testify regarding TCE exposure and its causative role in Parkinson's disease?

A. Yes.

MR. DOWLING: We've been going for about an hour.

Do you-all want to take a little break real quick?

MS. ELLISON: Sure.

THE WITNESS: Sure.

MR. DOWLING: We can go off the record.

THE VIDEOGRAPHER: All right. Going off the record. The time is 10:13 a.m.

(Whereupon, a brief recess was held.)

THE VIDEOGRAPHER: We are now back on the record. The time is 10:22 a.m.

BY MR. DOWLING:

Q. Dr. Gollomp, is there any prior testimony that you've provided that you want to add to or amend or correct in any way?

A. No.

Q. Okay. Are you aware that volatile organic compounds entered the drinking water at Camp Lejeune from the 1950s through the 1980s?

A. Yes.

Q. Are you aware that those volatile organic compounds included trichloroethylene, perchloroethylene, vinyl chloride, and benzene?

A. That is my understanding.

Q. Are you aware that the contaminants in the water at Camp Lejeune were distributed to end users including Marines, their families, and civilian workers on the base?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: That is my

understanding.

BY MR. DOWLING:

Q. Are you aware that Ms. Rothchild and Mr. Welch would have been end users who consumed the contaminated water at Camp Lejeune during this time period?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: That, again, is my understanding.

BY MR. DOWLING:

Q. Are you aware that in 1989, Camp Lejeune was declared a Superfund site by the EPA due, in part, to the extensive chemical contamination of the water supply?

A. I understand that.

Q. Are you aware that in the early 1980s, actual chemical testing revealed high levels of volatile organic compound contamination in the supply wells and water distribution system at Camp Lejeune?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: I don't know the details, but I have a general sense that that was the situation.

BY MR. DOWLING:

Q. So you have no reason or basis to dispute that the water system at Camp Lejeune was contaminated with solvents?

A. I have no reason to dispute that, no.

Q. Do you believe that it was, in fact, contaminated?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: From my understanding of the documents, yes.

BY MR. DOWLING:

Q. Are you aware that the Government spent tens of millions of dollars for mediating the contamination of the water supply at Camp Lejeune?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: Well, I'm not aware of how much they really spent, but I do understand that they performed some type of mitigation.

BY MR. DOWLING:

Q. Are you aware that the contamination was so extensive that the remediation is ongoing at this very moment?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: Again, I don't really know what they are doing and not doing at this point, although if that is the case, I wouldn't be surprised.

BY MR. DOWLING:

Q. Did you review -- well, first of all, do you know what the ATSDR is?

A. Well, I'm not sure I

remember exactly what that stands for, but I'm aware that it exists.

Q. What is it, to your knowledge?

A. It's a legal document that outlines issues relative to the contamination at Camp Lejeune.

Q. Do you know any of the individuals affiliated with the ATSDR?

MS. ELLISON: Objection; form and foundation.

BY MR. DOWLING:

Q. Are you just aware of who they are?

A. I don't know who they are, no. I mean, if I saw a document, I'd probably recognize their names, but I don't know who they are off the top of my head.

Q. Are you familiar with the ATSDR water modeling reports?

A. Again, I know they exist. I've definitely seen them, but I can't quote you any details at this point.

Q. Okay. So on Exhibits 3 and 6 -- do you have those in front of you?

A. Yeah, I can have them shortly.

Yeah.

Q. On Page 2 of Exhibit 3 and then also Page 2 of Exhibit 6, about a third of the way down, there's a bullet point that says, Agency for Toxic Substances and Disease Registry 2007, "Analysis of Groundwater Flow, Contaminant Fate and Transport, and Distribution of Drinking Water at Tarawa Terrace and Vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina: Historical Reconstruction and Present-Day Conditions: Charter A," July 2007. And I'll represent to you I believe that document is on both Exhibit 3 and 6.

Did you review that document as part of your work in this case?

A. I definitely reviewed it. I can't say that I reviewed it in great detail, but I certainly am aware it was

included in the materials that were submitted to me.

Q. What did that document say?

A. Well, as best as I recall, that document said that there were over -- all these hosts of substances that you have just cited -- PCE, TCE, vinyl chloride -- were in the drinking water at Camp Lejeune and that it was -- that it was widely distributed.

Q. And the document cites how test results showed hundreds of times the levels of safe -- the safe levels for these contaminants in the drinking supply?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: I'd have to look back at the document to see if it's hundreds or whatever it is, but I definitely know the documents talk to, clearly, excessive levels of these materials.

And I think I didn't mention benzene, but I think benzene was included in that too.

BY MR. DOWLING:

Q. Did you rely on any particular method or technique to arrive at your opinions in Mr. Welch and Ms. Rothchild's case?

A. Well, the technique I relied on is clinical history, clinical examination, and whatever other objective data I could obtain.

Q. And so clinical history, clinical examination --

A. Uh-huh. Yes.

Q. -- and objective data?

A. Uh-huh. Yes.

Q. What do you mean by "clinical history"?

A. Meaning mostly the history provided, but not entirely provided by both Mr. Welch and Ms. Rothchild as well as the medical records which document, you know, their history by their treating

physicians.

Q. And, specifically, what did your methodology entail related to clinical history, clinical examination, and objective data?

A. Basically, I conducted a fairly standard structured examination looking through the clinical record, obtaining an independent history from each one of these individuals; and then within the confines of the type of exam I was able to conduct, namely a virtual exam, obtain examination evidence as to the status of those individuals.

Q. Okay. And using that methodology, that's how you formulated your opinion in both of these cases?

A. Yes.

Q. And that's how you determined the issue of causation in both of these cases?

A. Essentially correct, yes.

Q. How is it not correct?

A. Well, I mean, obviously I

was aware of the background of the issues of exposure and when they were exposed, so of course I was aware of that from reviewing these other materials.

Q. What do you mean by you were aware of exposure?

A. Well, you referenced some of them; and, obviously, all these documents go to the fact that there was general exposure as well as there are other documents here about -- and I know we'll get into this -- as far as the specific potential exposure of these individuals.

Q. If you turn to Page 3 of Exhibit 2, and also, I believe -- is it fair to say that the bulk of these reports, Exhibits 2 and 5, follow a similar format?

A. Yes.

Q. And Page 3 in Exhibit 2 and 5 are very similar; correct?

A. I believe so. Let me just, of course, make sure I have them in front of me, but that is presumably correct.

Q. And I guess what I'm getting at is there's a section in there on Page 3 entitled Methodology.

A. Correct.

Q. And take your time to read this if you need to, but I just want to make sure.

A. Uh-huh.

Q. In Section 4, is that a complete and accurate description of the methodology you used to determine your opinions in this case?

A. I believe so.

Q. There's no other technique or method that you applied in formulating your opinions in Mr. Welch or Ms. Rothchild's case?

A. No.

Q. And, specifically, this section says that you considered -- in addition to other things, you considered Mr. Welch and Ms. Rothchild's exposure to contaminated water, and you cited to reports of Judy LaKind and Lisa Bailey --

A. Uh-huh. Correct.
Q. -- in both cases, in Exhibit 5 and in Exhibit 2; correct?
A. Correct.
Q. What do mean when you say you relied upon or you considered these reports?
Strike that.
Did you rely on them, or did you consider them?
A. That's an interesting way of putting it.
I relied on them.
Q. Okay. And what do you mean by you relied on Judy LaKind and Lisa Bailey's reports in formulating your opinions regarding Ms. Rothchild and Mr. Welch?
A. Well, I relied on them as far as providing as best as possible a quantitation of the exposure, essentially.
Q. And what is the executive summary of what those reports state?

MS. ELLISON: Objection; form.

BY MR. DOWLING:

Q. I'm not talking about the exact executive summary, but in a very summary fashion, what do you understand Judy LaKind and Lisa Bailey's reports to state?

A. I think it's fair to say I would like to, at least, take a quick look at the executive summaries just to make sure I'm citing them properly.

Q. So you, as you sit here now, don't have a recollection of what those reports state?

A. I don't want to opine as to exactly what they say when I don't remember exactly how they're phrased.

Q. Okay. Candidly, I don't have a physical copy with me. If your counsel on redirect wants to address that with you, they can, but --

A. Okay.

Q. -- I'll leave that up to

them.

A. All right. Fair enough.

Q. Did you talk to Dr. LaKind?

A. No.

Q. Did you talk to Dr. Bailey?

A. No.

Q. Did you review a report authored by someone named Kelly Reynolds as part of your work in this case?

A. What page are we looking at there?

Q. I'm just looking through my exhibits.

But, first of all, irrespective of these documents --

A. Uh-huh.

Q. -- do you recall reviewing a report from an expert named Kelly Reynolds?

A. Not specifically, but -- it wouldn't shock me that that name is somewhere in here, but I don't remember specifically.

Q. Do you know who Kelly

Reynolds is?

A. Not specifically, no.

Q. Do you know what her expertise is?

A. Again, I don't recall.

Q. As you sit here today, is it your testimony that you did consider Kelly Reynolds' report or that you didn't consider Kelly Reynolds' report?

A. Well, I don't specifically remember doing -- including that in my review, and I don't see the name listed -- unless I'm missing it -- on the Exhibits 2 and 6, so -- or 3 and 6 -- I'm sorry -- so I can't answer the question.

Q. So you don't have a recollection of considering Kelly Reynolds' report?

A. Not specifically. Do you have it available?

Q. I'm the questioner.

I'm just playing with you, Doctor.

A. That's all right.

Q. But you genuinely don't have a recollection of what the Kelly Reynolds report says, or even if you reviewed it?

MS. ELLISON: Objection to form.

THE WITNESS: No, I don't remember her name specifically, and I don't see it listed here either.

BY MR. DOWLING:

Q. Okay. And you don't discuss any analysis of Kelly Reynolds in your report, any opinions of Kelly Reynolds in your report?

A. No. No.

Q. Have you ever read the Camp Lejeune Justice Act?

A. I've skimmed it. I've not read it in its entirety at all.

Q. Are you familiar with the statutory language in the Camp Lejeune Justice Act?

A. I'd have to see it. I mean, I don't remember off the -- I don't

remember it off the top of my head.

Q. Do you recall the phrase "at least as likely as not" appearing in the text of the Camp Lejeune Justice Act?

A. I do.

Q. What does the phrase "at least as likely as not" mean to you?

A. Well, that phrase is -- in my mind, and it's my understanding, is a legal standard that is meant to convey a legal causation for an issue, and obviously, specifically in this case, relative to these toxic materials.

Q. Okay. You said you understand it to be a legal standard?

A. That's correct.

Q. Are there other legal standards that you are aware of from your prior experience?

A. Well, yeah. Of course. The standard that I've normally worked with when I've done expert work is to a reasonable degree of medical certainty, and --

Q. What -- I'm sorry. Go ahead.

A. Yeah.

-- and that's been the standard I've always been familiar with in rendering an expert opinion because that rises to the level of at least reasonable scientific certainty.

Q. And what does a "reasonable degree of medical certainty" mean to you?

A. Well, it means to me that there's a greater chance than not that something is, in fact, true medically and scientifically.

Q. Have you heard the phrase "more likely than not"?

A. I have.

Q. What does that mean to you?

A. The similar -- somewhat similar standard, but not exactly the same. And I know that sometimes is used in other jurisdictions that I'm aware of. I can't remember if I ever testified in those jurisdictions, but I'm aware that

that -- I've heard that standard.

Q. Okay. And in formulating your opinions, which of these standards did you apply?

A. Reasonable degree of medical certainty.

Q. So you did not consider whether Ms. Rothchild's exposure to the water at Camp Lejeune was as likely as not a cause of her Parkinson's disease?

A. That is correct.

Q. And you did not consider whether Mr. Welch's exposure to the water at Camp Lejeune was as likely as not a cause of his Parkinson's disease?

A. That is correct.

Q. And that's because, as you've testified, the standard that you applied was to a reasonable degree of medical certainty?

A. That is correct.

Q. And, in fact, the word or the phrase "as likely as not" or "at least as likely as not" does not appear

in your reports?
A. That is correct.
Q. Because you did not apply that standard?
A. That is correct.
Q. Have you ever reviewed any scientific literature that applies in "at least as likely as not" standard?
A. I don't believe I've ever seen that in the scientific literature.
Q. Do you think the "reasonable degree of medical certainty" standard compared to the "at least as likely as not" standard -- that one of them connotes a higher or more certain level of proof?
A. Yes.
Q. Which one?
A. Reasonable degree of medical certainty.
Q. And so "at least as likely as not," by design, is a lower standard of causal proof?
MS. ELLISON: Objection;

form.

THE WITNESS: Yes.

BY MR. DOWLING:

Q. But you didn't apply that standard?

A. Correct.

Q. We talked a little bit about exposure to toxic chemicals causing Parkinson's disease broadly.

A. Yeah.

Q. And it appears that you will acknowledge that, at least for some toxic chemicals, there is a known mechanistic reaction and they are known to cause Parkinson's disease?

A. Yes.

Q. Okay. And in those cases, is there any scientific data as to the duration between the exposure and when the ultimate Parkinson's disease manifests itself, or the onset of the Parkinson's disease?

I'm not asking for your personal opinion, but I'm asking for the

state of the science. Has the scientific community provided any research or analysis on the issue of the duration between exposure to a toxic substance and the onset of Parkinson's disease?

MS. ELLISON: Objection; form.

BY MR. DOWLING:

Q. Do you understand the question?

A. I do.

Q. Okay.

A. I do.

And again, the best studied example is the MPTP situation. And there, it could have been -- it was, in fact, in as little as a few days. And I can't really remember the outside limits in those studies, but it was somewhere in the range of 18 to 24 months.

Q. Okay. But those --

A. I can't recall it ever went much beyond that.

Q. That was a unique event in

the history of this science; correct?
A. Yes.
Q. And one of the reasons why is because it's unethical to expose people to these toxic substances and conduct experiments on them?
A. I'd say one reason why.
Q. And so is it -- it's not surprising, then, that the scientific community has not really been able to study this issue of latency?
MS. ELLISON: Objection; form, foundation.
THE WITNESS: It's -- obviously it's fair to say it's a very difficult one to study because the multiplicity of factors that may come into play confounds that significantly.
BY MR. DOWLING:
Q. And your opinion or your knowledge about this is really based on the MPTP case study?
MS. ELLISON: Objection;

form.

THE WITNESS: Well, it's the prototypical example where there's clear, unequivocal demonstration even down to autopsy studies that confirm that association.

BY MR. DOWLING:

Q. Are you aware of any scientific literature that has studied on a group-wide basis the average latency period between exposure to a toxic substance and onset of Parkinson's disease?

A. I'm not aware of any specific literature on that.

Q. And so if I were to give you a number, a latency number --

A. Yeah, yeah.

Q. -- it would likely just be arbitrary and not based on any science?

MS. ELLISON: Objection; form.

THE WITNESS: Well, I'd have to look at the study. I'd have to

look at the statistical analysis. To make a blanket question like that, I'd have to come back and say, let me see the study, let me see the methodology, because I'm not aware of anything that's solid in that -- that's very solid in that regard.

BY MR. DOWLING:

Q. Just to give you a hypothetical, if I were to represent to you it's impossible for someone to get Parkinson's disease more than 10 years after exposure, is there a study that supports that assertion or is that just an unknown fact?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: Well, you asked that as a hypothetical. So the hypothetical answer is, yeah. I mean, we just don't know.

BY MR. DOWLING:

Q. We just don't know.

And so what we were just discussing was the interval between exposure to a toxic substance and then the onset of symptoms.

Is there a lower end of that point? Are there any -- is there any verifiable studies about showing almost instantaneous Parkinson's disease being induced by exposure to chemicals?

MS. ELLISON: Objection; form.

THE WITNESS: I am not aware of any study to that effect except the MPT- -- well, maybe not -- not necessarily instantaneous.

I'm trying to remember. I remember seeing a video of this guy years ago that Bill showed. Hispanic guy. I mean, I'm actually visualizing the video in my head. And he -- he may have gotten it pretty quickly, but not in hours. It was a few days.

As you can tell, if I'm

remembering videos, I have a nodding familiarity.

BY MR. DOWLING:

Q. Based on our discussion about the mechanism of action --

A. Uh-huh.

Q. -- and -- well, I think it's in your reports that age is one of the known risk factors for the development of Parkinson's disease. Is that right?

A. It certainly is.

Q. And over a long enough continuum, just speaking generally, most of us will lose those dopaminergic neurons or there will be a loss, cell death, over time that eventually induces Parkinson's disease. Is that fair to say?

A. Well, that's an interesting question, a hypothetical one. But people have theorized that due to the natural loss of dopaminergic cells, at some point, if people live long enough, maybe to 120 or 150 like the Bible talks about

or whatever, we would all have Parkinson disease. I'm not really sure that I totally believe that.

And I think that we make broad statements about what happens generally neuropathologically, but whether there are -- there has to be variance, biologic variance on either side. And what that real variance is, I'm not sure any of us really, really know.

We know that symptomatic Parkinson's disease is evident when approximately 70 percent of the endowment of dopaminergic cells in your substantia nigra are gone, but what are the compensatory mechanisms from one individual to the next? What are the variances in that equation from one individual to the next? That's really hard to know.

And even our positron emission tomography studies and our single photon computer tomography

studies -- it's really -- we really have trouble getting at that because we don't have, really, a good way to image the substantia nigra itself and to know what the dopaminergic population looks like. We only have indirect functional neuroimaging as far as what's going on.

Q. Just to sort of break that down into building blocks --

A. Yeah, yeah. I know. That's a pretty complex answer.

Q. There is -- is there an acknowledgement in the scientific community that there's some level of dopamagentic [sic] neuron loss over time in most individuals?

A. Yes. And it's dopaminergic, not dopagenetic [sic].

Q. Dopaminergic.

A. Good.

Q. I apologize.

A. That's all right. I just thought I'd finally have to get you to say that.

MS. ELLISON: Long word.

MR. DOWLING: Yeah.

BY MR. DOWLING:

Q. And so in the main -- most individuals will have some progressive dopaminergic cell loss over the course of their life?

A. Yes.

Q. And if a substance known to cause Parkinson's disease, or specifically known to attack and kill dopaminergic neurons is introduced into that person, it's logical to say that that will speed up that cell loss process; is that correct?

MS. ELLISON: Objection; form.

THE WITNESS: Well, just because one says it's logical -- now, follow me through on this -- doesn't mean that that's actually what happens biologically, and let me clarify that.

What I mean is is that, A,

there's enormous variability from individual to individual, which is what I just pointed to. And, B, there are so many variables as far as thinking about how you induce dopaminergic cell loss and how the substance gets there and what are the reparative mechanisms within the structure, specifically the substantia nigra.

So there are a lot of -- and what the supporting cells might do, the oligodendroglia and the astrocytes. So it becomes a really -- and there's no answer. I'm not saying there is an answer, but I'm saying it's a much more nuanced answer than the question initially suggests.

BY MR. DOWLING:

Q. You agree that in a hypothetical case of an individual with Parkinson's disease, multiple factors may coalesce to cause the disease?

A. Yes.
Q. And some of those factors could be environmental?
A. I think that's a fair statement, yeah.
Q. And even in the very small percentage of individuals that have the actual genetic -- the known genetic cause of Parkinson's disease, exposure to environmental factors can play a substantial role in their development of Parkinson's?
MS. ELLISON: Objection; form and foundation.
THE WITNESS: Unfortunately, that may be true; it may not be true. I just -- it's not a question I can specifically tell you an answer in an individual case.
BY MR. DOWLING:
Q. What does the term "idiopathic" mean in the context of neurology and Parkinson?

A. Well, should I tell you what I tell my medical students, or should I --

Q. Whatever the best answer is.

A. Yeah.

Well, as I sort of jokingly say, "idiopathic" means we're the idiots, so...

Q. Why do you say that?

A. Meaning we don't know the cause, and that's why we use the term "idiopathic."

And of course what it means in a more serious sense is that it speaks to the fact that we cannot point to a specific cause.

But as I say, I love to say that to medical students and residents just to keep us all humble.

And over the past 30 or 40 years, particularly with the explosion of genetics and molecular biology, we've been able to move things from idiopathic to definitive causes. And that's a

pretty spectacular thing, but there are a lot of things in which we do not know the cause for sure.

Q. Are you familiar with Ms. Rothchild's treating physician, Joel Perlmutter?

A. Oh, yeah.

Q. Have you met him before?

A. Joel and I probably met along the way. I can't say he's my bosom buddy or anything like that, but I definitely know who he is --

Q. Do you think he's --

A. -- and he probably knows who I am too.

Q. Do you think he's a good neurologist?

A. Yes.

Q. Well respected?

A. Yeah, he is. He's particularly known for his scientific work in neuroimaging, but yeah.

Q. Interesting. Okay.

During his deposition, he

testified that idiopathic, quote, refers to the standard development and progression of the disorder.

Do you generally disagree with that, or do you generally agree with his characterization?

A. I'm sorry. Can you --

Q. It refers to the standard development and progression of the disorder. And I think it's in the context of whether the cause is known or unknown.

But do you have any qualms with that definition?

MS. ELLISON: Objection; form.

THE WITNESS: I think there's more to it than that, but at least that's a beginning of -- yeah, because I think "idiopathic" carries with it a little bit more of a load, like I just said.

BY MR. DOWLING:

Q. And idiopathic Parkinson's

is Parkinson's where the cause is unknown.

Is it true that most clinicians, their focus -- at least their primary focus is not to determine etiology?

A. Yeah, I think that's fair because, most of the time, we can't specifically identify a cause.

I have to confess -- not as a confession; it's something that interests me a lot -- I do pay a lot of attention to family history and thinking about underlying causes in an individual. And, of course, family history and genetics does play a role, and I tend to think about it a lot.

Q. Why do you do that?

A. Because I think there are -- there's -- well, I already talked about this a bit. There clearly is a significant genetic predisposition that exists out there, and maybe it's higher than 10 or 15 percent; maybe it's closer

to 25. I don't know. I have not -- one of these days, I'm going to run my electronic database and just try and come up with an answer, because I really think it's higher than what the literature cites. I just feel like --

Q. But that's your intuition; that's not --

A. That's my intuition, yeah. I've never run the study on my own patients which, you know, makes me think I should do it because I feel -- my intuition tells me it's higher.

Q. And it's fair to say that you're speculating when you say it's probably higher?

A. Yeah, I'm totally speculating. But it's just that I feel like when I ask about it, I hear about it a lot. And I'm really -- I really probe people about their family history. I do.

Q. Is one of the reasons why you might do that as a clinician, that if you determine or suspect someone has

genetically induced Parkinson's, then maybe their family members can take sort of preemptive or proactive measures? Is there anything they can do?

MS. ELLISON: Objection; form.

THE WITNESS: Yeah. I mean, that's a really fascinating question because we don't have anything in 2025 that I can specifically speak to as being a protective strategy against the ultimate evolution of the disease.

Where this becomes really more compelling -- forget the family members, who I get lots of questions from, by the way. I get this question a lot, and that's the reason why I take such careful family histories, because that's one of the big concerns when they walk in my door is, are my kids at risk, are my nieces and nephews at risk, are my siblings at risk,

that kind of thing. Very common question.

But where it really becomes compelling -- and I hate to be longwinded about this, but I obviously feel very strongly about this and it's a great interest of mine, is when people have some of the premonitory risk factors for the disease and they come to see me and ask, what's my risk, what can I do, do I have it now.

And if they have a certain type of sleep disorder, I know that the statistics suggest that there may be as high as an 85 percent chance of developing Parkinson disease over the next decade. That's an astonishing number, and yet they have nothing else wrong with them. And if they have loss of sense of smell and they have some autonomic problem such as constipation, that

increases the risk. And that's in a person who is asking the question.

I've even had that question from my own -- one of my own first cousins who has this sleep disorder. He called me up one day and said, I know you're an expert at this, Steve; what do you think?

And I said, David -- my cousin David -- and I said, David, I don't know what to tell you to do. But he's a smart guy. He runs an IT company. He's really smart. He already looked it all up. And he calls me up. I said, I know you've looked it up. He said, yeah, I've looked it up.

And I said, so you know; you've probably already surveyed the literature. He said, yeah. He did this AI search.

And I said, The only thing I can -- this is a long way of

coming around. The only thing I can -- I really tell these people is to maintain good health otherwise, maintain an active exercise program including aerobic activity, maintain your body weight, maintain good sleep. And we don't know whether that bends the curve.

I get asked this question a lot as you can tell. As I say, my own first cousin.

BY MR. DOWLING:

Q. Yup.

A. And, you know -- and as best as any of us know, that's the most we know. We don't know of any substance for sure that works.

I've been involved in trials where we've tried to come up with substances. I've published in this space -- and you probably looked me up and already know. And we can't say. We just can't say.

Q. What about curbing exposure to certain chemicals?

MS. ELLISON: Objection; form.

THE WITNESS: Well, I mean, that, of course, theoretically is great; but at the same time, we live in an industrialized society. And again, we know that, living in an industrialized society, there are all kinds of toxins and materials out there that do, to some degree, increase the risk.

BY MR. DOWLING:

Q. What are some of the other ones that you can think of?

A. Oh, right away, insecticides. They're high on the list, and we all know that, particularly rotenone.

Q. Do you believe certain insecticides can cause Parkinson's disease?

A. I wonder about that. I

don't think I can say specifically in a clinical case that that's necessarily the case. I've never seen a clinical case.

But certainly it goes back to the -- even the late 1960s. Dr. Barbeau's work from Montreal where he was speculating -- B-A-R-B-E-A-U. Andre Barbeau was speculating about this all the way back then. And that has certainly stood the test of time that people who live in agrarian places, in industrialized societies, do carry a higher risk of Parkinson disease.

Is it the insecticide exposure? Is it something else? I don't think we're entirely sure.

Q. Are you familiar with litigation surrounding paraquat?

A. I'm aware it exists. I don't know any of the details.

Q. So you're not involved in any of those cases?

A. No.

Q. Are you aware of them -- I

think some of them are pending in State court up here.

Are you aware of that?

A. I don't know. I don't know where those stand. I'm aware that there has been litigation.

Q. But, obviously, part of the allegations there is that paraquat has caused Parkinson's disease for those individuals.

And it's something that you are open to the possibility that that's possible?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: Well, again, anything is possible. I don't know the details of those specific paraquat cases. Obviously, I am aware that there's paraquat litigation. I've heard about it.

BY MR. DOWLING:

Q. And if paraquat or some other substance were to cause

Parkinson's, it would be through this mechanism, likely, that we've discussed?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: I don't know the answer to that. I don't know the answer to that because I am not conversant on the specific molecular mechanism that paraquat might operate through. I just don't recall that.

BY MR. DOWLING:

Q. Okay. So can you give me a good working definition of Parkinson's disease --

A. Okay.

Q. -- now that we're two hours into this thing?

A. Okay. Well, what we recognize as Parkinson's disease is a constellation of symptoms. And to be exact, we want to see -- we don't have to have all four of them, but they consist of rigidity -- that's muscle stiffness;

bradykinesia -- slowness; tremors -- shaking, a certain type of shaking, particularly a shaking at rest; and postural instability. In our clinical trials, clinical studies, we really want to see people having a minimum of two of those, and really three of those.

And what we also want to exclude is other signs of other -- what are -- I'll use the term "cousin" disorders. They're not really -- even have the same neuropathology. But we want to exclude very serious problems with postural control, eye movement abnormalities, motor neuron abnormalities like a Lou Gehrig's type of picture. Those things all tend to exclude traditional idiopathic Parkinson disease.

And when we do clinical trials, we actually go through this exclusionary process.

Q. Okay. And can you identify what some of those cousin disorders are that you were talking about?

A. Oh, sure. Sure. Progressive supranuclear palsy.

Q. You guys don't like short terminology.

A. We don't.

Do you want the eponymic name too? Steele-Richardson-Olszewski. It is. That is. That is the eponymic name. I hate eponyms personally.

Multiple system atrophy; pure autonomic failure; corticobasal syndrome. And there are slightly -- the terminology is slight -- there's slight differences in terminology in the literature, but -- for example, corticobasal, some people call it corticobasal degeneration, but I think the common agreed-upon term now is corticobasal syndrome.

And then drug-induced Parkinsonism, which happens a lot more than I care to admit, but I certainly see people who are treated with certain psychiatric drugs or certain drugs for

the gastrointestinal tract, and they have Parkinsonism from the drug, and stop the drug and they get all better, which is something to keep in mind.

And multiple infarcts, multiple cerebral infarcts can cause a vascular Parkinsonism, which looks a lot like Parkinson disease, but there are other features that tell you that's not what it is.

Q. Is essential tremor one of these cousin disorders or --

A. Not really, no. But, you know, it's interesting. There are differing -- there's differing discussions in the literature, and you -- it depends on who you -- whose data you believe, put it that way, that may be essential tremor confers a slight increased risk of Parkinson's disease.

But they are clearly different disorders. An essential tremor is five times more common than Parkinson's disease. And I have a vast

population of essential tremor patients, and the vast majority never evolve into Parkinson disease. But at the same time, I've seen my share of people through the years who I've known over a period -- have taken care of over a period of time where what looks like essential tremor turns out to be Parkinson disease, and it turns out they have both.

Q. Before I forget, I'm going to go back to drug-induced Parkinsonism.

A. Sure.

Q. Is the mechanism of action in those cases the same mechanism that we've described earlier?

A. No.

Q. What's the mechanism of action?

A. Yeah, the mechanism of action in those -- with those drugs is you're actually blockading the dopamine receptor in the postsynaptic neuron in the striatum.

Q. Is there damage to the

cells?

A. Generally, no.

Notice how I say this, though, because there is a small literature that speaks to the fact that, in certain people -- and I think this is harder to know -- in certain people, the chronic exposure to these antipsychotic drugs may actually cause dopaminergic cell loss, but I think that's pretty controversial.

Q. Okay.

For essential tremor, what are the known etiology of that disease?

A. Probably about -- roughly about 50 percent you can identify a heredity component, and that's frequently autosomal dominant, meaning passed from parent to child irrespective of sex, but there's a substantial portion in whom we can't speak to.

And the real problem is, in the case of essential tremor, we've identified genes in some families that

point to it; but as far as a universal unitary genetic cause of essential tremor, we've really not been able to come up with it.

Q. Are you familiar with literature studying stroke as a potential cause of essential tremor?

A. Well, it doesn't really cause essential tremor; but if you have a stroke in the right place in the brain, particularly the wrong place in the thalamus or in the cerebellum or cerebellar connections into the thalamus, you can get something that looks like -- something like essential tremor.

Q. Okay.

An essential tremor is a movement tremor?

A. Yes. It's the -- think of Katharine Hepburn in her later years.

Q. Can you just describe what that --

A. Oh, sure.

Q. -- looks like?

A. Yeah. It basically is a rapid shaking in the arms typically, not infrequently the head, not infrequently in the voice, and it's associated with activity; it's not typically present at rest.

Q. And that's contrasted with a tremor present in Parkinson's, which is a resting tremor?

A. Typically, yes. Sometimes it can be hard to tell them apart, by the way. But typically, yes.

Q. Do you believe trichloroethylene can cause Parkinson's disease?

A. That's a fascinating question. I honestly don't know the answer.

Q. Do you believe tetrachloroethylene can cause Parkinson's disease?

A. Well, tetrachloroethylene is different than trichloroethylene, but still they're in the same family. And

the same answer is I just don't know.

Q. Do you believe benzene can cause Parkinson's disease?

A. I think benzene -- again, it's -- I don't know -- probably less likely, but I'm not sure. I just don't know.

Q. Are you aware that the EPA published a final rule prohibiting nearly all uses of trichloroethylene in the United States?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: I have definitely heard that.

BY MR. DOWLING:

Q. Do you have any understanding as to why they would do that?

A. It may be a somewhat cursory understanding, but as far as the multiple potential toxicities of TCE as well as its cousins.

Q. And what might those

toxicities result in?

A. Well, I'm actually not entirely sure.

Q. And you testified before you're not familiar with any of Dr. De Miranda's research into TCE and PCE in mice?

A. Yeah. I mean, obviously, I briefly saw -- I know I've seen it, but I don't remember the details.

Q. But it's not in your report, and it's not on your --

A. No.

Q. -- Materials Considered List?

A. No. I thought I saw something relative to De Miranda in my materials list.

Q. Why don't you take a minute and let me know if you see it on there. Because I couldn't see it, but maybe I overlooked it.

A. Yeah. I mean, maybe this is not the same person, but I thought on

Page 2, the fourth one down, that is Briana De Miranda.

Q. Okay.

A. I missed that before, but I wonder if that's the same person.

Q. Do you recollect what the report that Dr. De Miranda authored said?

A. I don't off the top of my head. I'd have to see it.

Q. Did you consider that in forming your opinion?

A. I obviously must have reviewed it and considered it, sure.

Q. Do you know why you didn't write about it in your report?

A. I think because it didn't involve human data.

Q. But you can't say for sure why?

A. I can't say for sure why, no.

Q. If that were the reason, why didn't you say that in your report?

MS. ELLISON: Objection;

form.

THE WITNESS: I don't know.

BY MR. DOWLING:

Q. Was the first time you came to understand Dr. De Miranda's studies involved mice -- did that happen either today or after this deposition started?

A. I didn't realize --

MS. ELLISON: Objection; form and foundation.

THE WITNESS: I didn't realize it's the same person. I thought the spelling was different.

BY MR. DOWLING:

Q. So you -- are you testifying you did know that she did animal studies regarding TCE and PCE in Parkinson's before this deposition?

A. I had definitely heard and had some vague recall of studies about mice, but I didn't remember it was specifically her.

Q. Are you familiar with any

scientific studies showing an increased risk of developing Parkinson's after exposure to TCE or PCE?

A. Not specifically, no.

MR. DOWLING: 8, Madam Court Reporter? Exhibit 8, is that --

THE COURT REPORTER: Yes.

MR. DOWLING: Okay.

(Whereupon, Exhibit 8 was marked for identification.)

BY MR. DOWLING:

Q. I'm handing you an article that be will be Exhibit 8 to your deposition.

A. Uh-huh.

Q. Can you take a minute to review that?

A. Uh-huh.

Q. Are you familiar with this article?

A. Uh-huh. I am.

Q. And I believe you cited this article in your reports; correct?

A. Yes. I did.

Q. And this is an article from the Journal of Parkinson's Disease from 2024; is that correct?

A. That is correct.

Q. And do you know Dr. Dorsey and Bloem -- Drs. Dorsey and Bloem?

A. I know Ray.

Q. Okay. Is he someone that is respected in the field?

A. Yeah, I'd say it's fair that Ray is.

Q. With this article in mind -- on Page 5 of your reports, both your Rothchild report and your Welch report, Exhibits 5 and 2, the second paragraph midway down -- I'm going to read this out loud, and you just read along with me and tell me if I read it correctly: Some authorities believe that Parkinson's disease is predominantly an environmental disease, emphasizing the role of pesticides and air pollution. Consideration of all the environmental factors together is called the exposome.

A. Uh-huh. Yup.
Q. There's growing evidence that air pollution is particularly important (Dorsey and Bloem, 2024).
A. Yes. So I'm citing that paper.
Q. Okay. And you never mentioned TCE as a potential cause of Parkinson's disease in your report; is that correct?
A. That is correct.
Q. And you didn't mention it in those sentences I just read?
A. That is correct.
Q. Okay. Turning to Exhibit 8, on Page -- the third page, or Page 453 at the top.
A. Uh-huh.
Q. And just, again, read along with me while I read out loud.
A. Sure.
Q. Purely genetic causes of PD account for about 2% of individuals with the disease.

Is that a true statement?

A. Well, essentially that is true. We actually discussed that at some length.

Q. Okay. So you agree with that statement?

A. Yeah. I mean, whether it's 1 percent, 2 percent. Somewhere in that range. Any percentage quote like that is obviously subject to some, you know, variation.

Q. And then the next sentence, Even "common" genetic causes, such as LRRK2 mutations, are present in only 2-3% of individuals and have incomplete penetrance (25 to 43%).

Do you agree with that statement?

A. Generally, yes.

Q. Other factors, including environmental ones, must be necessary for the disease to develop.

Do you agree with that statement?

A. I think that's more hypothetical; but at least in a general sense, I do.

Q. Okay. So you think that other factors are necessary for the disease to develop in addition to genetics?

MS. ELLISON: Objection; form and foundation.

BY MR. DOWLING:

Q. Do you agree with Dr. Dorsey?

MS. ELLISON: Same objection; form and foundation.

You may answer.

THE WITNESS: Well, I do agree with the statement in that there are other factors that must play a role. And as I suggested to you already earlier on, there are a multiplicity of them. And in any one individual, that's pretty hard to quantitate.

BY MR. DOWLING:

Q. Okay. But just so we're clear, this is all in the same paragraph --

A. Yes.

Q. -- and he's talking about how incredibly limited genetic causes are of Parkinson's in the first sentence; right?

And then the last sentence that's highlighted says, Other factors, including environmental ones, must be necessary for the disease to develop.

Do you agree with that?

A. Well, like I already answered, but I would expand it to say not necessarily just environmental ones. You have to think about other health issues contributing to that cause.

Q. Okay. Fair enough.

A. To restrict it to just environmental factors, I think, is actually too narrow.

Q. But to be fair, what he's saying is genetics alone in many cases is

not sufficient to cause the disease; it's necessary for other factors to be present.

MS. ELLISON: Objection; form and foundation.

THE WITNESS: Well, I think what it really boils down to is he's making -- he's hypothesizing that that is the case. But is that necessarily true in any specific individual, I think that's much harder to say.

BY MR. DOWLING:

Q. Well, he's citing to research. All of these sentences except for the very first one cite to other research; correct?

A. Uh-huh.

Q. And so he's not just coming up with this out of thin air.

MS. ELLISON: Objection; form.

THE WITNESS: No, I'm not challenging on that.

BY MR. DOWLING:

Q. And this journal, Journal of Parkinson's Disease where these sentences appear, is this a peer-reviewed journal?

A. Yes.

Q. And so your peers and his peers, presumably, reviewed this article and provided comments to it; and ultimately, it made it past that peer-review process; is that right?

A. That is correct.

MS. ELLISON: Objection; form and foundation.

BY MR. DOWLING:

Q. And so through the peer-review process, it was determined to be a true statement of the science that other factors, including environmental ones, must be necessary for the disease to develop --

MS. ELLISON: Objection. Form and foundation.

BY MR. DOWLING:

Q. -- is that true?

MS. ELLISON: Same objection.

THE WITNESS: Well, I've already answered. I've already answered that question. You can certainly include environmental factors, but it's got to be more nuanced and extensive than just that, in my mind.

BY MR. DOWLING:

Q. And again, it's the rare case where you could say it's solely genetic factors, though; is that correct?

MS. ELLISON: Objection; form.

BY MR. DOWLING:

Q. That's pretty narrow on the other end?

A. Yeah, that's really narrow. We don't --

Q. No. I'm saying it's very rare for you to find a case in which you can confidently say to a degree of medical certainty that this is

exclusively due to genetic factors.

MS. ELLISON: Objection; form.

BY MR. DOWLING:

Q. Do you agree with that?

MS. ELLISON: Sorry.

Objection; form.

THE WITNESS: Yeah. I mean -- well, I've already testified to that effect, that it is -- I mean, just based on what I just told you, based on my own patient population. I've already testified to that effect.

BY MR. DOWLING:

Q. Okay.

Moving down to the other portion that's highlighted, this is a section entitled The Principal Causes of Parkinson's Disease.

And again, read along with me as I read aloud, please.

A. Sure.

Q. The main causes of PD are

environmental toxicants.

Do you agree with that?

A. Maybe so. Maybe so.

Q. Why not?

A. Well, that is a broad statement that in a way -- I'm not saying it is disregarding -- but in a way is sort of discounting other risks that may lead to the disease. To say causation when something is part of the whole panoply of things that come together to cause dopaminergic cell death prematurely, that is a bit of -- I have to say, to me, that's a bit of an intellectual stretch because --

Q. So you don't agree with Dr. Dorsey or the peer reviewers in this journal that the main causes of PD are environmental toxicants?

MS. ELLISON: Objection; form and foundation.

And I will note for the record that Dr. Gollomp was still speaking and you cut him off.

So just please give him a chance to fully answer your question before you ask your next one.

THE WITNESS: I'm disagreeing with the characterization that this is the main cause of PD. I think it's got to be more nuanced than that; plus, there's the multiplicity of factors that have to be playing a role.

BY MR. DOWLING:

Q. So you disagree with the statements in this peer-reviewed journal article?

A. That one sentence, I have trouble with saying that that's the case across the panoply of Parkinson patients.

Q. So you disagree with that first sentence in this peer-reviewed journal article?

A. I do. I do. I think it's a bit of an overstretch.

Q. Okay. And then the next sentence, Chief among these are certain pesticides and industrial solvents like trichloroethylene and air pollution.

Do you agree with that sentence?

A. Well, like we've already discussed, all of these things we're aware contribute to this environmental morass. And here, I've already said people who live in industrial societies, particularly those who live in agrarian portions of industrial societies, are at higher risk.

Q. Including those individuals exposed to trichloroethylene?

A. I can't say that's true, I can't say it's not true, because we have to characterize what contribution TCE might be actually making in an individual's circumstance.

Q. So you disagree with the statement in this peer-reviewed journal article that, Chief among these are

certain pesticides, industrial solvents like trichloroethylene and air pollution?

A. Well, now you're sort of mischaracterizing what I'm saying a little bit because what Ray -- and I don't know Ben Bloem -- but what Ray and he are talking about is that, as a constellation, they believe that the -- and this is what they believe -- that this -- these three types of things -- he doesn't name specific pesticides. He names industrial solvents, does cite TCE, and then air pollution, which is a very nonspecific statement. And for all we know, how much air pollution any one of a host of -- how should we say? Neurotoxins are in air pollution. That's not a specific statement.

MR. DOWLING: I'm going to object as nonresponsive.

BY MR. DOWLING:

Q. So you disagree with the statement, Chief among these are certain pesticides, industrial solvents like

trichloroethylene, TCE, and air pollution? You disagree with that statement, the truth of that statement?

MS. ELLISON: Objection; form.

THE WITNESS: It's not that I disagree with its hypothetical nature in any -- notice how I keep coming back to this -- any one individual. But it's a constellation of things, and we're casting a broad net and saying, okay, all industrial solvents, all pesticides, and air pollution are -- and -- yeah, they're possible toxicants. Sure. Of course. But that includes a multiplicity of substances.

BY MR. DOWLING:

Q. Does that multiplicity include trichloroethylene?

A. Well, he lists trichloroethylene. So I can't disagree with the fact that he's included it, but

there are obviously other industrial solvents --

Q. And, obviously --

A. -- many others.

Q. I'm asking if you think that that's a true statement.

MS. ELLISON: Objection; form.

BY MR. DOWLING:

Q. I don't know why you don't want to answer the question directly.

A. Well, I mean, I think it's --

MS. ELLISON: Objection; form. I didn't hear a question.

MR. DOWLING: I asked him a question.

Can you read back the question?

(Whereupon, the court reporter read the referred-to question.)

MS. ELLISON: So, objection to form.

You can answer.

THE WITNESS: Okay.

It's a true statement in the context of the two of them trying to globally collect together environmental risks and say these appear to us, based on the data out there, that these are the most likely environmental toxins to cause or potentially cause Parkinson's disease.

But then he goes on to say, these are not the only toxicants tied to PD and more may be found.

And that's true.

BY MR. DOWLING:

Q. Okay.

I notice in your report when you cited this article -- turning back to Page 5 of Exhibit 5 and Exhibit 2, in that sentence we just read, Dr. Dorsey identified solvents like trichloroethylene, pesticides, and air pollution.

You agree with that, that those are in that sentence?

A. Yes, they are.

Q. And then when you look at your report on Page 5, you cited pesticides and air pollution, but you didn't cite trichloroethylene.

A. Correct.

Q. And then you cited to this article which cites trichloroethylene, but you didn't include that in your report.

Was that an error, or did you intentionally take that out of this attribution?

A. I did not include it because the statement was a general statement of industrial solvents, and he cited TCE as just a single example.

I talk about organic solvents earlier in that same paragraph, and I think that that's as best as anyone can say that, as a general group, there may be -- as I've already said, there may

be risks.

Q. Well, when you presented the research in this paragraph, you presented it as though Mr. Dorsey -- Dr. Dorsey and Bloem talked about only two factors -- pesticides and air pollution -- but they actually talk about three: Pesticides, air pollution, and trichloroethylene.

Do you agree with that?

MS. ELLISON: Objection; form.

THE WITNESS: They do cite that, correct.

BY MR. DOWLING:

Q. And you didn't cite trichloroethylene in your report?

A. Correct.

Q. Okay.

Continuing on in the highlighted paragraph in Exhibit 8, please, as you mentioned before, they say, These are not the only toxicants tied to PD, and more may be found.

Do you agree with that? I

think you said you did.

A. Uh-huh. Yes.

Q. Okay. And then it says, quote, However, these are all linked to PD by epidemiological and preclinical studies, many damage mitochondria (which are known to be impaired in PD), and they all expose humans through multiple routes (including inhalation and ingestion) and various means (occupational and environmental).

That was a long sentence.

Do you agree with that sentence?

A. Generally speaking, yes.

Q. So all of those substances, including trichloroethylene, are linked to PD by epidemiological and preclinical studies?

MS. ELLISON: Objection; form.

THE WITNESS: Well, that sentence is, of course, not exclusively focusing on TCE, but

rather is being a much broader, broader statement than just that.

BY MR. DOWLING:

Q. So you think he -- even though he just mentioned trichloroethylene, air pollution, pesticides, you think he may not be talking about trichloroethylene when he says, All are linked to PD by both epidemiological and preclinical studies, many damage mitochondria, and are known to be impaired in PD in all exposed humans through multiple routes and various means?

You think he wasn't referring to trichloroethylene in that sentence?

MS. ELLISON: Objection; form.

THE WITNESS: By making the statement about mitochondrial failure, I'm not -- in humans, I'm not sure there's any data to say that that's the mechanism of TCE

in humans, potentially.

BY MR. DOWLING:

Q. So this sentence that begins with "however," you think is not true?

MS. ELLISON: Objection; form.

THE WITNESS: Well, I think it's nuanced and he's making a global statement about -- and he says it himself. They say it themselves, all these multiple things coming together.

Do they all have the same mechanism? I don't think that statement actually -- and the references that they speak to actually addresses that.

BY MR. DOWLING:

Q. Sir, is it your testimony that Dr. Dorsey's article does not assert that TCE is linked to PD by both epidemiological and preclinical studies? You're saying it's more nuanced, I think?

A. Yeah, that's what I said.

MS. ELLISON: Objection; form.

THE WITNESS: Yeah. I think it's more nuanced than that. And what he says is many damaged mitochondria. But do we know in humans that -- for instance, you're asking a question that specifically TCE does that. I don't know. I don't think we know that. I know we don't know that.

BY MR. DOWLING:

Q. And I just want to note for the record, in both Exhibit 5 and Exhibit 2, which are Mr. Welch and Ms. Rothchild's report, when you attributed this statement to Dr. Dorsey, in both of them --

A. Right.

Q. -- you removed the reference to trichloroethylene in your reports even though it appears in his peer-reviewed journal article.

Do you agree with that?

MS. ELLISON: Objection; form.

THE WITNESS: Yes.

BY MR. DOWLING:

Q. What are the basic allegations that Ms. Rothchild has made in her case?

MS. ELLISON: Objection; form and foundation.

THE VIDEOGRAPHER: Counsel, I think your mic fell off.

MR. DOWLING: Oh, I'm sorry. Should I repeat the question?

THE VIDEOGRAPHER: Sure.

BY MR. DOWLING:

Q. What are the allegations that Ms. Rothschild has made in her case? You said on Exhibit 3 that you reviewed the short form complaint of Diane Rothschild.

A. Uh-huh.

Q. That's the basic allegations of her complaint.

What are the basic allegations of her complaint?

Do you understand the question?

A. Yes, but I would want -- I do understand the question, but I would want to see the document that you're specifically referencing just because you're asking me specific questions about it.

Q. So as you sit here today, you can't recite the basic fundamental allegations of Ms. Rothschild's complaint?

A. I would want to see the document.

Q. Okay. And -- okay.

MS. ELLISON: Also, I don't mean to cut you off, but it looks like we might be going into a new topic. It's been about an hour.

Do we want to take a break?

MR. DOWLING: That's fine, yeah.

MS. ELLISON: Is that good with you, Doctor?

THE WITNESS: Sure.

MR. DOWLING: That's good with me.

THE VIDEOGRAPHER: We're going off the record. The time is 11:32 a.m.

(Whereupon, a brief recess was held.)

THE VIDEOGRAPHER: We are now back on the record. The time is 11:48 a.m.

BY MR. DOWLING:

Q. Dr. Gollomp, I wanted to turn briefly back to Exhibit 8, Dr. Dorsey's article.

A. Uh-huh.

Q. And if you flip to Page 457 of that general article -- yeah -- there's a section dealing with trichloroethylene.

A. Uh-huh.

Q. And so Dr. Dorsey has

expanded on the earlier comments he made in the journal article about the history and status of trichloroethylene and the science; is that correct?

A. Oh, yeah.

Q. And if you go down to the second paragraph, he gives a background on trichloroethylene in the first paragraph.

In the second paragraph after Footnote 66, he says, quote, TCE is a known carcinogen and its toxic effects have been known since at least 1932.

Do you agree with that?

A. Uh-huh. Yes.

Q. And then he says, Like many pesticides, TCE is a mitochondrial toxicant that inhibits complex I of the respiratory chain.

Is that a true statement?

A. I believe it is. I'd have to check that reference, Reference 63, to know that for certain.

Q. Okay. I'll just represent

to you that Exhibit -- or Reference 63 is to Dr. De Miranda --

A. Yes. I see that.

Q. -- who we've spoken about.

A. Yeah.

Q. But I think you testified before that maybe earlier in this document, in this journal article, when we talked about the mitochondrial damage, that you thought that that was not established for TCE --

MS. ELLISON: Objection; form.

Sorry.

BY MR. DOWLING:

Q. -- back on Page 453 when Dr. Dorsey said, Chief among these are certain pesticides, industrial solvents like trichloroethylene and air pollution. These are not the only toxicants tied to DP and more may be found. However, these are all linked to PD by both epidemiological and preclinical studies, many damage mitochondria are known to be

impaired in PD, and they all expose humans through multiple routes.

Do you see that?

A. Yes.

Q. And so, then, subsequently on Page 457, he cites to studies establishing that TCE is a mitochondrial toxicant.

A. I see that.

Q. Do you agree with that? Do you have any reason to dispute that?

A. I have no specific information to dispute that.

Q. And what would it mean to be a mitochondrial toxicant?

A. Well, I talked about this before relative to MPTP as being the prototypical mitochondrial toxicant affecting complex I of the mitochondrial respiratory chain. So we're talking a similar target.

Q. But it's one of the steps in that complex chemical reaction that ultimately damages the dopaminergic cells

in the substantia nigra?

A. It is one of the steps, yes.

Q. Thank you, sir.

Again, turning back to Ms. Rothchild in particular, what are the basic allegations that Ms. Rothchild has made in her case in court?

MS. ELLISON: Objection; form.

THE WITNESS: I'm sorry?

BY MR. DOWLING:

Q. You can answer.

A. Oh, oh, oh, oh, oh. I thought you were just making a statement. I'm sorry.

Q. No, no.

What are the basic, simple, general allegations that Ms. Rothchild is making in her case?

MS. ELLISON: Objection; form.

THE WITNESS: Well, Ms. Rothchild is -- I'd love to just see the complaint, but her basic

allegation is that -- in reference to this litigation, that her Parkinson's disease is a result of exposure to TCE at Camp Lejeune.

BY MR. DOWLING:

Q. And is it true that her basic allegation is actually that it's to all the toxicants at Camp Lejeune?

A. Again, I'd have to look back at the -- exactly how the complaint is phrased, but I'll grant that you're giving me the correct information.

Q. When was Ms. Rothchild present at Camp Lejeune?

A. Let me see, because I don't remember off the top of my head. It was quite some time earlier, but let me just get there.

Q. And just feel free to take whatever time you need.

A. Yeah, yeah. No, I understand. I don't want to just spout. Why am I not seeing this? Yeah. So that's what I

thought. So she had the exposure --

Q. Can you just tell us which page you're referring to?

A. Yeah. Yeah. I'm referring to Page 11.

Q. On Exhibit 2?

A. Correct. I'm sorry. Yes.

And I may be missing other points in the -- in my report where I cited earlier. I just can't spot it right away.

But she had exposure at Camp Lejeune in her -- she's now in her late 20s. And I know I captured somewhere in here how long she was exposed, but it was sometime in her late 20s.

Q. Okay. So you don't recall the specific years, or even generally?

A. I just knew it was roughly -- I cite here five decades earlier. So in here, she was 77 at this time. So in her late 20s -- excuse me -- late 20s.

Q. Do you recall from your

review of the records why or in what capacity Ms. Rothchild was present at Camp Lejeune when she was there?

A. Let me see if I can answer that. I keep thinking -- I reference her working as a teacher. I don't recall if she worked specifically as a teacher there, though.

I'm sorry. I can't find it in my report specifically which --

Q. You don't know in what capacity she was there?

A. I don't recall off the top of my head. I know I was aware of it, but I don't recall what it was.

Q. Do you recall, based on your review of the records which would have included her deposition testimony, what her water consumption patterns were like?

A. Not specifically, no.

Q. Did you consider that in forming your opinion?

A. Not specifically, no.

Q. Do you have an opinion as to

how much trichloroethylene Ms. Rothchild was exposed to when she was at Camp Lejeune?

A. I'd have to defer to the toxicology experts on that one.

Q. So you're deferring to who?

A. I believe that would be either Dr. LaKind or Bailey.

Q. Is there a reason you picked those two to give them some deference and not over any other individuals?

MS. ELLISON: Objection; form.

THE WITNESS: They seem to have the most comprehensive analysis of potential exposure. That's the main reason why I deferred to them.

BY MR. DOWLING:

Q. And you don't have a recollection as to whether you considered Dr. Reynolds' opinion about Ms. Rothschild's exposure?

MS. ELLISON: Objection;

form.

THE WITNESS: Well, I think we talked about Dr. Reynolds already. I don't -- didn't see Dr. Reynolds' stuff.

BY MR. DOWLING:

Q. So is it your testimony that you did not consider Dr. Reynolds' opinion in formulating your opinions here?

A. Yes. I guess I'm going to have to say that because I haven't seen those.

Q. Do you have an opinion about how much tetrachloroethylene Ms. Rothschild was exposed to at Camp Lejeune?

A. Not specifically, no.

Q. You agree, and I think you write in your report, that Ms. Rothschild does, in fact, have Parkinson's disease?

A. Yes.

Q. You don't dispute Dr. Perlmutter's diagnosis?

A. No.
Q. And you agree it's a progressive disease?
A. Correct.
Q. You agree that, as a result of her Parkinson's disease, Ms. Rothschild has harm as a result of that?
I'll withdraw the question.
Do you agree that Ms. Rothschild experiences pain or discomfort associated with her Parkinson's disease?
A. Well, I would agree she has disability as a result of her Parkinson disease.
Q. And do those disabilities cause functional limitations?
A. Yes.
Q. Do they cause pain?
A. They can.
Q. In this case, do they cause pain?
A. I believe --
MS. ELLISON: Objection; form.

THE WITNESS: I don't really -- and maybe I'm missing it. I don't have any specific reference in the story that she shared with me that she's having much in the way of pain from this.

BY MR. DOWLING:

Q. Okay. What about just generalized discomfort dealing with the symptoms of Parkinson's disease? Do you think that's present in her case?

MS. ELLISON: Objection; form.

THE WITNESS: Well, the disability of Parkinson disease is very real. And it certainly limits her, and she certainly shared that with me.

BY MR. DOWLING:

Q. And what were the ways in which it limits her?

A. Well, I'll quote from what she told me because I think that says it.

Q. Yeah. Just tell us which

page, if you don't mind.

A. Yeah. Page 7, the bottom of the page. And she reported, of course, the onset of the tremor, and the tremors continued to trouble her; and her ability to carry out fine motor activities have evolved over time, and that has definitely limited her.

Q. You may need to speak up, sir.

A. Excuse me.

Q. It's okay.

A. This throat thing.

Her tremors really limited her. And she does have some spasm in her legs, which I think that's what you were getting at as far as potential causes of pain, when her medication is out of her system when she first wakes up in the morning; so that's certainly limiting. She's having some trouble with swallowing. Like I said, she's had trouble with motor control of her hands. She has occasional falls, and I saw she

was uncertain on her feet when I saw her virtually.

And those -- and she has difficulty carrying out, you know, many of her activities of daily living, which her friend, Gary Smith, needed to assist her with, has needed to assist her with. So, yeah.

Q. And it's not your opinion that any of that is being exaggerated, any of those limitations she has; correct?

A. Oh, correct.

Q. You found her to be genuine and candid in your assessment of her?

A. Very much so.

Q. Okay. And as a general matter, if someone is experiencing a disease like Parkinson's and they have disabilities on multiple planes, I mean, there's any number of ways this can affect them; right?

A. Yes.

Q. From -- I don't know if she

told you this story, but it's in the records of her having trouble eating soup.

Did she relate that to you, because of her tremor?

A. Well, she -- both that and also actually she has trouble swallowing liquids to some degree. So, yeah, she was very clear about that.

Q. And sort of difficulty maneuvering around her house? That can be one of the ways in which this disease affects her?

A. Yes, and we actually already sort of tangentially referenced that. But yes.

Q. Okay. Were there any -- so she exhibits motor symptoms of Parkinson's disease. I think you talked about a lot of those.

What about nonmotor symptoms?

A. She doesn't have a lot of nonmotor symptoms, which is a good thing.

So she didn't really talk about being -- having a lot of constipation, orthostatic hypotension. She didn't really talk about -- a lot about her sleep being profoundly disrupted.

So from that perspective, it didn't sound like she was having a lot of the nonmotor symptoms, at least in what she shared with me. But she did say her sleep was fragmented, so...

Q. Yeah.

And sleep. How do you typically assess whether someone's sleep is being disturbed by Parkinson's? Do you get their self report, or do you get a report of, like, a co-sleeper?

MS. ELLISON: Objection; form.

THE WITNESS: Well, usually it's both. And usually the person themselves doesn't know everything there is to know about their sleep, so I am dependent upon a companion or partner.

BY MR. DOWLING:

Q. Were you able to get that in this case?

A. It sounded like I was getting it, but I wonder. I don't know if Gary is actually in the room. And I didn't get a sense that that was really the case, but I don't know.

Q. So it's possible that she may not have an accurate picture into her own sleep patterns?

A. Yeah, that's possible. But as she said to me, she thinks she probably does not have rapid eye movement behavior disorder. But I realize that was probably based upon what Gary Smith was sharing with her, because she couldn't possibly know that.

Q. Okay.

A. I was dependent upon her. And Gary was present during the interview, and he didn't chime in on that issue either way.

Q. So putting aside what caused

her Parkinson's disease, you agree she has Parkinson's disease?

A. Yes.

Q. And you agree she's suffered harm as a result of the Parkinson's disease?

MS. ELLISON: Objection; form.

THE WITNESS: The Parkinson disease has clearly caused disability.

BY MR. DOWLING:

Q. Which is a kind of harm?

MS. ELLISON: Objection; form.

THE WITNESS: Well, I mean, from the point of -- I don't want to quibble about that, but -- I mean, yes, it is a harm in the very broad sense of the word, but I prefer -- I guess I don't like the pejorative term "harm." And when I talk to patients all the time, I say "disability." I don't

think I'd ever say to a patient, this is causing you harm, you know, except excessive falling, that kind of thing where they break things and stuff like that. In a way it's a harm, but it's not -- you know, I guess because I never like to negatively frame things, even in that way.

BY MR. DOWLING:

Q. Well, this isn't a benign circumstance that she's experiencing; correct?

A. Correct. Absolutely. That's merely the way I, as a clinician, will frame stuff.

Q. That's fair.

If you need to review your report, feel free, but I'd like to get a list of all the risk factors that you believe are present in Ms. Rothschild's case, and if I get you to sort of give me a taxonomy in terms of which ones you ascribe the greatest weight to.

A. Okay. Give me a couple of seconds to get to the right spot.

Yeah. And I think probably the best place this is summarized is on Page 11, the second paragraph under the Summary of Opinions. And I think I list these things fairly succinctly.

First of all, I felt that the very early age of onset of her disease going back at least over 30 years, its very slow progression -- the typical Parkinson patient does not progress this slowly and have the disease for this many years; her great responsiveness to levodopa, which is a wonderful thing -- but over time, it begins to become more problematic, and she really hadn't had the level of problematic levodopa response -- the lack of any cognitive impairment, which is very common as the disease progresses, particularly over multiple decades; the lack of -- at least as I could determine from her history of the sleep disorder of

rapid eye movement behavior disorder, that mitigates -- those are important clinical perils; no major autonomic dysfunction and the early onset of the leg dystonia would tend to point to more of a -- all of these put together would point to more of a genetic cause for this.

Now, admittedly, as I say here, we don't really know what her mother had, and her mother also died fairly young.

So it's hard to really know for sure, but having seen clinically people like -- just like her through the years who go on for many, many years, those factors really do point to a genetic form, and if -- playing the statistics, like I say in my report, the PARK2 gene, or the Parkin gene, seems to be the most likely one, though there are, obviously, other genes here as I point out.

And then she -- I make the

point about -- about the exposures. She certainly wasn't exposed to any other neurotoxic drugs or metals like manganese. I didn't mention manganese earlier. Heavy metals is a cause of Parkinson's disease. There's no pesticide exposure. And then I'm relying on LaKind and Bailey as far as level of her exposure to chemicals at Camp Lejeune.

So, again, pointing out that she had an early diagnosis under the age of 50, progressed very slowly, and there are other features, those all suggest to me that this is a genetically modulated Parkinson disease, whichever gene it is, because we don't know.

Q. Okay. We'll unpack that a little bit.

So you indicated there as part of your response that you relied on LaKind and Bailey in connection with their assessment of Ms. Rothchild's exposure; correct?

A. Correct.
Q. And you've indicated in your earlier testimony that you did not rely upon any other experts that opined on that matter; is that correct?
A. Yes.
Q. I want to give you a hypothetical.
A. Right.
Q. If it turns out that the decision-maker in this case does not credit LaKind and Bailey's opinions, that would necessary cause you to change your opinion; correct?
MS. ELLISON: Objection; form and foundation.
THE WITNESS: I don't think so because I think the genetic load in her case is so compelling. Just the story and the slow progression and early onset really do -- and like I say, I have clinical experience with people who are just like her, and, you

know -- and like I testified earlier, a very few of them actually have the genetic data. And that, to me, is pretty compelling, though I don't have the genetic data in her case.

BY MR. DOWLING:

Q. If the factfinder in this case, or the decision-maker, just to use the common parlance, determines that Ms. Rothchild was exposed to substantial levels of TCE and PCE at a level that could cause her disease, you would disagree with that opinion; correct?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: Well, inherent in that hypothetical question are a lot of assumptions about what the factfinder might or might not say.

But still, I would come back to the fact that there's still a very significant genetic load in

her case; and the fact that she has had a very long duration of the disease with relative -- relatively little accumulation of disability and with an early onset -- which, again, onset under the age of 50 really does point to -- also points to a genetic etiology.

BY MR. DOWLING:

Q. But if the factfinder or decision-maker determines that they're going to credit someone other than LaKind and Bailey and they are going to find that Ms. Rothchild was exposed to toxic levels of PCE and TCE, that would fundamentally alter your opinion in this case?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: Well, I think I've already answered it, but I'll state it that still I think the predominant etiology in her case is not related to that because of

all the factors I've discussed.
BY MR. DOWLING:
Q. If, in that hypothetical we're discussing now --
A. Right, right.
Q. -- where a factfinder doesn't give great weight to LaKind and Bailey, they gave weight to some other expert --
A. Right.
Q. -- who finds that Ms. Rothchild was exposed to toxic levels of TCE and PCE, are you willing and open to the possibility, Dr. Gollomp, that the exposure could be as likely a cause as the genetic component in this case?
MS. ELLISON: Objection; form and foundation.
BY MR. DOWLING:
Q. In that hypothetical circumstance.
A. No, no. I understand where you're going with this.
MS. ELLISON: Just the same

objection.

THE WITNESS: Yeah, I understand where you're going with this. And when you're saying "as likely as not," which is not really a scientific standard -- you know, obviously, anything is possible. This is -- this is a hypothetical, and we're trying to determine something in retrospect. And, hypothetically, I don't know the right answer.

BY MR. DOWLING:

Q. But again, you applied in your report a higher standard of -- what was the standard you testified to?

A. Reasonable degree of medical certainty.

Q. Okay. And so if the standard were whether --

A. Uh-huh.

Q. -- exposure is as likely as not --

A. Uh-huh.

Q. -- and the factfinder determines she was exposed to a toxic level of chemicals, are you open to the possibility that the toxic chemicals are as likely a cause as the genetic cause here?

MS. ELLISON: Objection; form.

THE WITNESS: I have to answer in the negative because the genetic etiology seems so compelling. So I have to answer in the negative.

BY MR. DOWLING:

Q. What if you're given compelling evidence that she was exposed to toxic levels of TCE and PCE? Is there any circumstance under which you would change your opinion?

MS. ELLISON: Objection; form.

THE WITNESS: Well, I would certainly, in the abstract sense in an individual who had that kind

of exposure and had a fairly few years -- I'm just being very hypothetical now -- a much shorter latency and a much more aggressive disease, then I would certainly rethink that.

BY MR. DOWLING:

Q. Just one moment.

But to be clear, you didn't apply an "as likely as not" standard in this case?

A. That is correct.

Q. Assuming it is determined, judiciously or otherwise, that Ms. Rothchild was exposed to a toxic level of TCE or PCE --

A. Right.

Q. -- would the exposure to a toxic level of TCE or PCE trigger a genetic predisposition to develop Parkinson's disease?

MS. ELLISON: Objection; form.

THE WITNESS: That's a

fascinating question I don't know the answer to.

BY MR. DOWLING:

Q. Are you open to the possibility that there is an interaction between genetics and exposure to toxic chemicals that can be the contributing and substantial causes jointly of Parkinson's disease?

MS. ELLISON: Objection; form.

THE WITNESS: In the theoretical sense, yes. I mean, yeah.

BY MR. DOWLING:

Q. Go ahead. Sorry.

A. Yeah. In the theoretical sense, yes. I can't -- I mean, we've all talked about the fact that it's a confluence of things.

Q. And again -- I mean, I'm not trying to get out over my skis here, but Dr. Dorsey says in Exhibit 8 --

A. Yeah.

Q. -- that genetics alone are not enough; it's necessary for there to be something else. That's what I'm driving at, Doctor.

A. Yeah. No. I know what you're driving at.

MS. ELLISON: Objection; form.

BY MR. DOWLING:

Q. He says, Other factors, including environmental ones, must be necessary for the disease to develop.

A. But I think in an individual who has -- presumably has the genetic mutation to induce the disease, that's a different candle of wax than what Ray is talking about where they don't have this profound genetic load that sets them up.

Q. Okay. So you think he's talking about something else, but I'm talking about the genetic-environmental interaction.

A. Yeah, I know. Yeah. No, I understand.

MS. ELLISON: Objection; form.

THE WITNESS: Yeah, I understand what you're getting at. But I think -- you know, in the more abstract sense, I think that hypothesis is potentially correct, of course. I mean, we're all suggesting that the cause of Parkinson's disease is multifactorial across many things.

But someone who has such a strong genetic load, I think you're in this quagmire of that it's not quite the same as what Ray Dorsey and Ben Bloem are postulating in their 2024 paper.

BY MR. DOWLING:

Q. So you talked about the early onset of Ms. Rothchild Parkinson's disease.

Do you recall Ms. Rothchild's date of birth?

A. I know she's 77, but I don't

know her exact date of birth.

Q. If I represent to you that it was March 30th of 1947, does that comport with your recollection of the records?

A. Yeah. Yeah.

Q. When was Ms. Rothchild first diagnosed with Parkinson's disease?

A. Well, she was probably -- because Dr. Perlmutter --

Q. And I asked diagnosed too.

A. Oh.

Q. I'll refer you to Page 10 of your report to speed you up.

A. Yeah. That's where I was going to. Yeah.

He didn't officially make a diagnosis of Parkinson disease in -- it looks like probably 2014, 2015, in that time frame. He, obviously, was a little equivocal.

Q. So you think it was 2014 or 2015?

A. One of the two. I mean,

just reading his notes, that's -- I think that's -- and, really, he wanted to give it a whirl to test out the therapeutic impact of levodopa in 2013, but I got the sense that he really wasn't as -- it took him a while to be convinced of the diagnosis is what I'm really getting at. He didn't see her that often --

Q. Yup.

A. -- to have more granular information about that.

Q. So if she were diagnosed in 2014 or 2015, let's just say 2014 --

A. Yeah.

Q. -- and she was born in [redacted] of 1947, how old was she at the date of diagnosis?

A. Forty-seven.

Q. So 2014 minus 1947?

A. I believe that's correct. Let me think for a second -- 47, 43, 50 --

MS. ELLISON: I don't -- well, I don't want to say

anything, but...
THE WITNESS: So let's see for a second. So 2007 --
MS. ELLISON: Go to the --
THE WITNESS: So that's -- let's go back the other way.
MS. ELLISON: Just for your reference --
THE WITNESS: So that's 11 years ago. So she was in her 60s at that point that he finally reached the diagnosis.
BY MR. DOWLING:
Q. So I admittedly went to law school, not math school.
A. Right.
Q. But I got 67 --
A. Right. That's what I get.
Q. -- 2014 --
A. That's what I get too.
Q. I will note your counsel is pointing to the fact that, in your report, you say that she actually was diagnosed in 1999, in the first section

of -- first sentence of that section there.

Do you see that?

A. Yeah, I do.

Q. Okay. And I think what's going on here is you say it was 1999, but then subsequently, he couldn't detect Parkinson's disease in the 2014-'15 time period; is that right?

A. That's correct. And a part of the problem is records are missing.

Q. Okay. So let's go -- because -- for sake of argument with 1999 as the diagnosis date.

A. Yeah.

Q. And doing the math again, if her birth date is March of 1947, how old would she have been --

A. She would have been 52 then.

Q. Okay. And so she wasn't in her 40s when she was diagnosed?

A. Correct.

Q. And so based on your review of the records, when was the onset of

symptoms?

A. Well, the onset of symptoms was clearly earlier. And that's one of the confounders here, is that since it began earlier and it's -- and she, herself, even said that specific treatment for the disease was started sometime in the late 1990s. And part of the problem is we're missing -- we're missing records that help us decide what's going on, because she had symptoms as early as the early 1990s, and we just -- we just don't know.

And at that point in the early 1990s, she was in her mid -- correct me if I'm wrong -- 47 -- she was in her mid-40s, so...

Q. I think from your report and my review of the records that this is showing an onset date of mid-40s.

Can we agree on that?

A. Yeah. That's what I'm going back to.

Q. Okay. And so that's the

best evidence we have, is that Parkinson's disease began, from your report, in the mid-40s.

A. That's correct.

Q. Okay. So she was not under 40 when the Parkinson's disease began?

A. No. I did not say that.

Q. Okay.

A. I said she was under 50.

Q. Okay. And in addition to the Parkinson's disease, Dr. Perlmutter has diagnosed her with essential tremor; correct?

A. Correct.

Q. And she takes a medication specifically for that condition as well?

A. Yes, she does.

Q. In terms of sequencing, do you believe the tremor began before the Parkinson's or do you think the Parkinson's began before the tremor -- essential tremor I should say?

A. It's hard to know, actually. It's really hard to know. But it sounds

like he thought he saw -- this is Joel Perlmutter now -- he saw more of the essential tremor features early on. But certainly a few years later, he was more convinced of the Parkinson features.

And like I testified already, the two disorders can be concordant in one person.

Q. The records that you've talked about in your report, are they consistent with someone who maybe had an essential tremor in the early '90s?

A. It's possible.

Q. Okay. And that's a separate disease than Parkinson's disease?

A. Presumably so. Now, that's where this gets a little foggy because people can have both. And even on our Parkinson disease rating scale, we actually purposely acknowledge the kinetic tremor and rate it. And is that -- and I already suggested to you that some authors think that essential tremor increases your risk of Parkinson's

disease, so that's a little more complicated.

MS. ELLISON: And I apologize. I don't mean to interrupt.

But just when you're speaking, just put the coffee cup down so it doesn't block the video.

THE WITNESS: Okay. Okay. I'm sorry.

MR. DOWLING: And I'll just probably finish up this section, and then we can go a little bit more.

MS. ELLISON: I won't hold you to it.

MR. DOWLING: Okay.

BY MR. DOWLING:

Q. Just to summarize so we can get a clear record here, though --

A. Sure.

Q. -- she's diagnosed in 1999 according to your report, and she's in

her mid-50s?
A. Yes.
Q. According to your report, the onset was in the earlier '90s when she would have been in her mid-40s?
A. Correct.
Q. Not below 40?
A. Correct.
Q. Okay. And some of the earlier symptoms appear to be symptoms consistent with an essential tremor?
A. Correct.
Q. Isn't it possible that she had an essential tremor in her mid-40s and then developed Parkinson's disease subsequent to that, maybe as late as the 2000s?
A. It's not inconceivable.
Q. In which case, she would have developed Parkinson's disease in that hypothetical when she was over the age of 50?
A. Correct.
Q. What is the scientifically

accepted -- let me lay some foundation, or else I'll get an objection.

MS. ELLISON: You might get one anyway.

MR. DOWLING: Certainly will.

BY MR. DOWLING:

Q. So you believe the predominant risk factor, or the driver in this case is genetics, and you've pointed to certain flags that you believe are markers in the records that point in that direction. One of them is the young-onset Parkinson's disease. Is that correct?

A. Correct.

Q. What does the scientific community say about young-onset Parkinson's disease in terms of what the actual young onset is?

MS. ELLISON: Objection; form.

THE WITNESS: Well, I mean, the typical signpost is under the

age of 50.

(Whereupon, Exhibit 9 was marked for identification.)

BY MR. DOWLING:

Q. I'm handing you a document that's been labeled Exhibit 9. Take a chance to review this, Doctor.

Are you familiar with this article?

A. I guess I am. I'm on it.

Q. Who's Dr. Stern?

A. He's one of my colleagues at UPenn.

Q. Okay.

A. Yeah.

Q. Are these authors knowledgeable folks, including Stephen Gollomp?

A. Yeah. We had some vague notion of what we were doing.

Q. UPenn, that's a pretty good university; right?

A. Yeah, the last time I checked.

Q. Do you remember, was this a peer-reviewed journal?

A. Yeah, this was. I think this was in -- oh, it's Archives in Neurology. I thought it was in another journal, but it was Archives.

Q. Okay. And I'm just going to direct you down to -- I'm sure you're familiar with this study because you wrote it. But the bottom right paragraph says -- describes the nature of this study into the epidemiology of Parkinson's disease, and the sentence says, Patients were separated into two groups based on the age at which they experienced their first symptoms. Onset before age 40 years, parentheses, young-onset patients, and onset --

A. Right.

Q. -- during or after age 60 years, old-onset patients.

So in this particular case-controlled study, the criteria for young-onset Parkinson's disease was onset

below 40 years?

A. That's correct.

Q. And based on your review of the records and your testimony, Ms. Rothchild would not have qualified as a young-onset Parkinson's patient under the criteria of this study; is that correct?

A. That's correct. Under the criteria in this study, that's correct.

Q. Hold on a second. One moment.

(Whereupon, Exhibit 10 was marked for identification.)

BY MR. DOWLING:

Q. I'm handing you a document that's been labeled as Exhibit 10.

Do you happen to recognize these authors?

A. No, I don't. I don't know these guys.

Q. Okay. Do you recognize this journal?

A. Yeah. I don't -- I don't read this particular journal, but I've

certainly seen it before.

Q. Okay. And this is an article also dealing with young-onset Parkinson's disease; correct?

A. Yes.

Q. And again, these are -- many of these are trying to get at the genetics of Parkinson's; correct?

A. That's correct.

Q. And in the introductory paragraph, there's a light gray highlighted sentence that says, YO PD is defined as the diagnosis of PD between the ages of 21 and 40.

Is that correct?

A. That's correct.

Q. And so both the studies that I've provided to you, including one you wrote, have defined young-onset Parkinson's disease as onset below the age of 40?

A. That's correct. However, what I was referencing -- and you have not provided any references to that

effect -- is that people with -- there's no question the young-onset group, really young-onset group, like, let's say Michael J. Fox, a prototypical example of very early onset, age 29.

In contrast, a group with genetic predisposition, it's generally regarded -- and that's been -- that has been published since we did this 1991 article in Archives -- that it's -- the age relationship to genetics is really anyone under the age of 50.

Q. Got it.

A. And then there's yet a separate group of the really young-onset patients, like Michael Fox, who have it between 20 and 40. So she's not one of them.

Q. Do you believe there are still researchers in this scientific community that view young-onset Parkinson's disease as occurring before the age of 40?

A. The kind of young-onset

patients we were dissecting out in 1991, which is, what, 34 years ago, that is a different group.

Q. But regardless, under these formulations, Ms. Rothchild would not be considered to have young-onset Parkinson's disease?

MS. ELLISON: Objection; form.

THE WITNESS: That's correct. But also, I didn't say that she had young-onset Parkinson's disease. I merely was pointing to the fact that she probably had onset under the age of 50 and she had other features that point to a genetic cause.

BY MR. DOWLING:

Q. And just to be clear, she may have had onset before the age of 50 if her first symptoms were actually an essential tremor and she didn't develop it until later; correct?

A. Potentially.

Q. And if that were the case, that would tend to weaken your hypothesis that this is a genetically caused case?

MS. ELLISON: Objection; form.

THE WITNESS: To some degree, yes. But at the same time, given her very slow progression, her ongoing really good response to levodopa and the lack of serious cognitive dysfunction evolving over all this time tends to point in the other direction. And since we don't have definitive genetic data, we don't know.

MR. DOWLING: Sort of in this topic, I'd like to finish up, but --

MS. ELLISON: That's fine.

MR. DOWLING: -- maybe -- I don't want to give you a time.

MS. ELLISON: Dr. Gollomp, are you fine to keep going? Okay.

THE WITNESS: I'm fine.

MR. DOWLING: And then we'll break after this.

BY MR. DOWLING:

Q. So on the subject of genetics and Ms. Rothchild --

A. Yeah, yeah.

Q. -- you admit she has never had any genetic testing done for Parkinson's disease?

A. That's my understanding. I think even Joel Perlmutter sort of talked about it and didn't do it.

Q. And, really, the crux of your opinion that this is genetically induced is you've looked at all these factors -- and I understand it's a multifactor analysis -- but one of the factors you've given weight to is her mother's report of a tremor at some point in her life?

A. Right. Right.

Q. What do you know about Ms. Rothchild's mother's health?

A. Not a lot. It's that simple. Not a lot.

Q. Okay. And her mother is obviously deceased; right?

A. Right.

Q. And do you know how her mother died?

A. I don't remember. I really don't remember. I know she was relatively young. I think she was in her 60s, if I'm not mistaken.

Q. Did she die of Parkinson's, or with Parkinson's disease?

A. No, she didn't have Parkinson's disease, any way recognized.

I said 62. She died at 63, and I don't know what she specifically -- what she died from.

Q. Do you recollect any discussion about a car accident?

A. I don't remember.

Q. Okay. That's fine.

But you have no reason to believe that Parkinson's was in any way

related to her death?
A. No, not specifically.
Q. Okay. And her mother was never diagnosed with Parkinson's disease?
A. That is correct.
Q. Are you aware of anyone else in Ms. Rothchild's family tree that has ever been diagnosed with Parkinson's disease?
A. No.
Q. And I think we've discussed this at the outset, but if it were a genetic cause, you would expect, in some of those cases, to see some other relative present with Parkinson's disease?
A. Depending on the gene that might be involved, yes, I might.
I also know as good as family histories can be, they sometimes can be very sketchy. So it's not as reliable an indicator as I wish it was.
Q. But you'd obviously feel more confident in your opinion if you

were aware of a relative in her family tree that had Parkinson's disease?

A. Yes.

MS. ELLISON: Objection; form.

BY MR. DOWLING:

Q. And that doesn't exist, in fact, in this case?

MS. ELLISON: Objection; form.

THE WITNESS: Correct.

BY MR. DOWLING:

Q. Ms. Rothchild has reported that her mother had a tremor later in her life; right?

A. Yes.

Q. And it's been described in the records as an essential tremor?

A. I believe so.

Q. And we've talked about what an essential tremor is. We talked about some of the causes of an essential tremor, but can you describe for me again whether you think a stroke is a potential

cause of an essential tremor?

A. Well, like we discussed earlier, that's what we traditionally really call an "essential tremor." Stroke is not really a cause, but it can be a -- a tremor can be a manifestation.

Q. Can a stroke contribute to the development of an essential tremor?

A. Generally, no. Generally, no.

Q. So a stroke is in no way associated with an essential tremor?

A. In any one individual circumstance, there may be some exacerbation, maybe an asymmetry due to stroke. But as an actual underlying cause, in the vast majority of people, no.

(Whereupon, Exhibit 11 was marked for identification.)

BY MR. DOWLING:

Q. I'm showing you a document that's been marked as Exhibit 11.

Do you recognize this

document?

A. Yeah. I believe this is from Joel Perlmutter's records.

Q. And I'll direct your attention to the top family history section, and it indicates Stroke: Mother, father.

A. I see that.

Q. Did you consider that in formulating your opinion?

A. Not specifically, no. And also, she didn't share that her mother had a stroke. So I didn't quite follow that.

Q. Okay. Isn't it a fact, though, that a stroke can either be associated with or cause symptoms that resemble an essential tremor?

MS. ELLISON: Objection; form.

THE WITNESS: That's a very low probability.

BY MR. DOWLING:

Q. Why?

A. Because when stroke causes a tremor, it affects specific targets in the central nervous system that would result in a very asymmetric tremor and would very probably be associated with other deficits beyond just shaking.

Q. But you don't know if she had other deficits one way or another.

A. I do not.

Q. So it's plausible. You have ascribed a very low possibility to it, but it's plausible that her stroke either caused or contributed to her essential tremor.

MS. ELLISON: Objection; form, foundation.

THE WITNESS: Well, that's assuming that her mother indeed had a stroke, because she, herself, did not say her mother had a stroke.

I see this in Perlmutter's record, but she didn't share that with me and -- nor did I see it

anywhere else in the record.
BY MR. DOWLING:
Q. Did you ask her?
A. Yes, I did.
Q. Do you have notes of that interaction where she asked your -- where you asked her? I'm sorry.
A. They exist.
Q. Have you given them to them?
A. Yes.
Q. So we talked earlier in connection with Exhibit 8 about Dr. Dorsey's discussion of the environmental causes --
A. Uh-huh.
Q. -- of Parkinson's disease.
A. Yes.
Q. And I think we pulled out the section where he noted that purely genetic causes of PD account for about 2 percent of individuals with the disease.
A. Yes.
Q. Do you agree with that?
MS. ELLISON: Objection;

form.

THE WITNESS: Well, like I said at the time, I think it's somewhere in that neighborhood. I mean -- because he even himself says about 2 percent -- whether it's 3 percent, whether it's 4 percent, and probably varies across ethnic background and a lot of other features that aren't necessarily encompassed in that statement.

BY MR. DOWLING:

Q. But that's a very low probability.

A. Agreed.

Q. And it's your testimony, in the absence of any genetic testing, in the absence of any definitive family history, that Ms. Rothchild fits within the very limited class where there's a low probability of genetic cause?

MS. ELLISON: Objection; form.

THE WITNESS: Yes.

BY MR. DOWLING:

Q. But as a general matter, you don't dispute that genetics in the main are not thought to account for most cases of Parkinson's disease?

MS. ELLISON: Objection; form.

THE WITNESS: In the main, a solely genetic cause, just as I even testified early in this deposition, even in my own clinical experience, it's not a common thing.

MR. DOWLING: Was that 11?

MS. ELLISON: Yes. We're on to 12.

(Whereupon, Exhibit 12 was marked for identification.)

BY MR. DOWLING:

Q. I'm handing you a document that's marked Exhibit 12.

Are you familiar with this study, Dr. Gollomp?

A. I have seen it at some point, and I know a fair number of the authors.

Q. Do you know Dr. Goldman?

A. No.

Q. Are you familiar with Dr. Goldman's research?

A. No.

Q. Let's just kind of go through in the abstract section.

A. Uh-huh.

Q. Well, first of all, the title is Solvent Exposures and Parkinson's Disease Risk in Twins; correct?

A. Correct.

Q. And this is a study from the -- is it the Annals of Neurology?

A. Yes.

Q. Is that a peer-reviewed journal?

A. Yes.

Q. Okay. And it's from 2012. And the purpose of this

study was to test the hypothesis that exposure to specific solvents was associated with PD risk using a discordant twin pair design.

Do you agree with that, under Objective? That's what this says?

A. Uh-huh.

Q. And what do you understand about twin studies and why they're used in this scientific research?

MS. ELLISON: Objection; form and foundation.

BY MR. DOWLING:

Q. If you understand. Maybe you don't.

A. No. No, I do understand it.

And twin studies, particularly if they're identical twins -- that's something that one has to be careful about, because if they're not monozygotic twins, they're not really genetically identical.

But presuming that was the case in this study -- and I'd have to

read it through to answer that question whether they're monozygotic or dizygotic -- the idea is that you're controlling for genetic risk factors -- I'm talking globally relative to doing twin studies -- and then trying to -- in this case, they're trying to quantitate a relationship to solvents. And the one twin who was exposed more had a higher risk of Parkinson disease.

Q. So let's just address the monozygotic issue.

If you turn to Page 3 under the heading Statistical Analysis?

A. Yeah.

Q. Can you read that first sentence for me?

A. Yeah.

Paired analyses were performed in monozygotic and dizygotic twins discordant for PD. For all risk variables, observations for both twins were truncated at the earlier of PD diagnosis age in the affected twin or the

last year for which information was available.

So that's what it says.

Q. Okay. And so what's your testimony about the impact of dizygotic twins, if any?

A. What I was getting at is is that dizygotic twins are not -- even monozygotic twins are not necessarily absolutely genetically identical, but dizygotic twins are no more identical than any other siblings.

And in this study, in the Results section, they actually tell you how many. They had -- 198 PD discordant pairs were identified; 85 were monozygotic and 110 were dizygotic. So the majority were like any other siblings; and then three they say they don't. I'm not sure what that means.

So -- whatever. So they do break it down.

Q. What page are you referring to?

A. The bottom of Page 3, Results.

Q. Okay. And this study reports in the Results section on Page 1, with respect to those who were ever exposed to trichloroethylene --

A. I'm sorry. Page 1.

Okay. Yeah. Okay. Back to Page 1.

Q. Yeah.

It reports an increased risk of Parkinson's disease with an odds ratio of 6.1, 95 percent confidence interval of 1.2 to 33, and exposure to perchloroethylene tended towards significance.

Do you agree that those results tend to show an increased risk among these twin pairs if they were ever exposed to Parkinson's disease?

MS. ELLISON: Objection to form and foundation.

THE WITNESS: I'm sorry. I don't understand the question.

BY MR. DOWLING:

Q. So does this study establish an increased risk based on exposure to trichloroethylene?

MS. ELLISON: Objection.

THE WITNESS: Well, it's suggestive, but, of course, it's one study. And it is curious that they didn't break out in this analysis the delta between the dizygotic and monozygotic twins.

So, you know, I don't know having not studied this study in detail why and how they came up with this specific approach to the analysis.

BY MR. DOWLING:

Q. But an odds ratio of 6.1 -- are you familiar with odds ratios?

A. Yes.

Q. And what does that connote in epidemiology?

A. That connotes a pretty meaningful risk, at least in this study,

yes.

Q. And you didn't cite this study in your report?

A. I don't believe so.

Q. And I think you said you hadn't even seen it before; right?

A. Well, not in recent history. It was -- it's 12 years. I may have seen it along the way, but I don't specifically recall it.

Q. Okay. One moment.

MR. DOWLING: Do you-all want to break for lunch?

MS. ELLISON: That's good with us.

MR. DOWLING: Okay.

THE VIDEOGRAPHER: All right. Going off the record. The time is 12:47 p.m.

(Whereupon, a luncheon recess was held.)

THE VIDEOGRAPHER: We are now back on the record. The time is 1:39 p.m.

BY MR. DOWLING:

Q. Dr. Gollomp, I just want to follow up briefly on the twins study that we just discussed in Exhibit 12.

A. Uh-huh.

Q. And you testified about the role of a monozygotic twin and a dizygotic twin and how that may have affected this study's results.

A. Sure.

Q. What is a dizygotic twin just for definitional purposes?

A. Sure. Sure. A dizygotic twin is essentially no different genetically from any other brothers or sisters. In other words, it's from two separate eggs, sperm randomly, not the same sperm. So there's really no difference between dizygotic twins and any other siblings except they're born at the same time.

Q. That being said, do siblings still share a substantial proportion of genetic material?

MS. ELLISON: Objection; form.

THE WITNESS: Yes.

BY MR. DOWLING:

Q. And do you have an estimate of what percentage they share?

A. Well, that varies so much. Probably in the range -- I mean, you can think in terms of the range of about 30 to 50 percent.

Q. And monozygotic twins, that's one egg that separates?

A. Separates.

Q. And so that's a 100 percent copy of genetic material in each?

A. In theory, yes, though depending upon how the egg splits, how the nucleus splits, how the DNA in the nucleus splits, it might not be really identical, but it's certainly closer than virtually anybody else.

Q. And the purpose of these twin studies is to attempt to control for genetic factors, to isolate genetic

factors and test other factors in a particular way; is that correct?

MS. ELLISON: Objection; form.

THE WITNESS: Yeah, that's -- I'm sorry.

MS. ELLISON: It's okay.

BY MR. DOWLING:

Q. And so here the attempt was being made to control for genetics and to test exposure to TCE and PCE.

MS. ELLISON: Objection; form.

THE WITNESS: That's my understanding.

BY MR. DOWLING:

Q. And do you believe this study provides any evidence of an increased risk to exposure to PCE and TCE causing Parkinson's disease?

A. It might. But like any other study, it deserves replication. And one problem I found with it, though I haven't had a chance to read it or -- I

may have seen it years ago and just don't remember it -- is that they lumped all the twins together and they came up with this odds ratio. And I'm just a little surprised they didn't carve out the monozygotic twins from the group as a whole. That's very surprising to me.

Q. But that group as a whole does show an increased risk from exposure to TCE; is that correct?

MS. ELLISON: Objection; form.

THE WITNESS: So it appears.

BY MR. DOWLING:

Q. And you did not consider that in formulating your opinions in this case?

A. Not this specific study, no.

(Whereupon, Exhibit 13 was marked for identification.)

BY MR. DOWLING:

Q. I'm handing you Exhibit 13. You testified earlier you were not familiar with Dr. Goldman; is

that right?
A. At least I don't believe so.
Q. This is another study from Dr. Goldman's -- of Dr. Goldman's. It's entitled Risk of Parkinson's Disease Among Service Members at Marine Corps Base Camp Lejeune, and was published in the journal JAMA Neurology in 2023; is that correct?
A. Uh-huh. That is correct.
Q. Is that a reputable journal?
A. Yeah, it is.
Q. Okay. And I'll give you a moment to just read through the study if you'd like, if you've not done so before.
A. Okay.
Q. Have you studied -- or have you seen this study before today?
A. I believe I have, actually.
Q. Did you cite this study in your report?
A. I don't believe so, no.
Q. When did you first see this study?

A. It must have been a couple of years ago when it first came out. I vaguely remember seeing this.

Q. Okay. And this is a population-based cohort study; correct?

A. Correct.

Q. What does that mean in layman's terms?

A. Well, what it means in English is they're trying to compare different populations with different exposures, and in this case, Camp Pendleton vis-a-vis Camp Lejeune.

Q. And they were looking at Marines and personnel who resided at those two particular bases?

A. That's my understanding from reviewing this, yeah.

Q. And under the Results section, it says, Camp Lejeune veterans had a 70% higher risk of PD (odds ratio, 1.70; 95% confidence interval, 1.39 to 2.07 P value less than .001.

Do you see that?

A. Uh-huh. I do.
Q. What's the significance of that result?
MS. ELLISON: Objection; form.
BY MR. DOWLING:
Q. What does that result mean?
A. Well, what that result means is that, in this population in comparison, Camp Lejeune in comparison with Camp Pendleton -- and Camp Lejeune obviously had the issues with volatile hydrocarbons -- that there was a higher risk; there's a higher incidence of Parkinson's disease.
Q. And you did not in any way discuss this report or this journal article in your report?
A. That is correct.
Q. You didn't consider this journal article and its results in formulating your opinion?
A. No.
(Whereupon, Exhibit 14 was

marked for identification.)

BY MR. DOWLING:

Q. I'm handing you Exhibit 14. Exhibit 14 is a journal article in the journal Environmental Health authored by Frank J. Bove entitled Mortality Study of Civilian Employees Exposed to Contaminated Drinking Water at USMC Base Camp Lejeune: A Retrospective Cohort Study.

A. Uh-huh.

Q. Why don't you take a minute to just review that Abstract section, sir?

A. Sure.

Okay.

Q. And this is a mortality study; correct?

A. Correct.

Q. What is a mortality study?

A. Meaning measure of causes of death.

Q. And I believe you do have this study on your Materials Considered

List.

A. I believe so.

Q. Do you recall reviewing this study before you formulated your opinions?

A. I don't specifically remember this study, but it certainly looks familiar.

Q. Okay. And is this another study that's comparing Marines and others at Camp Lejeune with Camp Pendleton?

A. That's what it's doing, yeah.

Q. Okay. And under the Results section, does it say that, compared to Camp Pendleton, Camp Lejeune workers had mortality hazard ratios for Parkinson's disease of 3.13?

A. Yes, that's what it says.

Q. Okay. And what is the significance of that odds ratio?

MS. ELLISON: Objection to form.

THE WITNESS: Well, it

sounds significant, but I'm not sure what the 0.76 and 12.81 are, what those specific statistical measures are. I'd have to go into the paper, of course, to figure out what those particular numbers mean. I don't remember off the top of my head.

BY MR. DOWLING:

Q. When you say "it sounds significant," what do you mean by that?

A. Meaning that number sounds like that's more than chance. And what I'm looking for is the actual P value, which I don't see there, but I think that that 12.81 is a correlate of the P value. But I'm not sure what that number actually means. It's probably buried here in the paper what that exactly means. I'm not sure I can put my finger on that just yet.

Q. Okay. So in layman's terms, though, does this study report an increased risk among the Camp Lejeune

workers as compared to the Camp Pendleton workers?

MS. ELLISON: Objection; form.

THE WITNESS: It certainly suggests that, yes.

BY MR. DOWLING:

Q. And it's a pretty substantial risk?

MS. ELLISON: Objection; form.

THE WITNESS: Well, it's definitely an increased risk, sure.

BY MR. DOWLING:

Q. Do you recall whether Ms. Rothchild was a Camp Lejeune employee?

A. That was my understanding, that she was an employee.

Q. And do you recall whether she was present at the base during the time period of the cohort studied here?

A. Let me see.

Yes, I believe she was. I

believe she was.

Q. And you did not cite this report reflected -- this study reflected in Exhibit 14 in the body of your report.

A. Correct.

Q. You did not consider it in formulating your opinion.

MS. ELLISON: Objection; form, foundation.

THE WITNESS: Correct.

(Whereupon, Exhibit 15 was marked for identification.)

BY MR. DOWLING:

Q. I'm handing you a document labeled Exhibit 15, sir.

A. Okay.

Q. This is a document labeled Morbidity Study of Former Marines, Employees, and Dependents Potentially Exposed to Contaminated Drinking Water at U.S. Marine Corps Base Camp Lejeune dated April 2018.

Do you recognize this document or this study, sir?

A. I believe so.
Q. And I will let you know for the record, this is not the complete study. This is --
A. No.
Q. -- as with other voluminous records, just an excerpt from this study.
But can you take a moment to just review the Introduction and the Results sections cited in this document, sir?
A. Sure.
MS. ELLISON: And I know it will be marked as an exhibit. But just for the record, the excerpt is Pages 1 through 12, and then Table 11, which is on Page 84.
MR. DOWLING: Correct.
THE WITNESS: Okay.
BY MR. DOWLING:
Q. And this is -- the study in Exhibit 15 is a morbidity study of former Marines, employees, and defendants; correct?

A. Correct.
Q. And a morbidity study is what?
A. Basically, people in -- a short way of thinking about it is people affected with the disorder.
Q. And again, is the design of this study a comparison between individuals at Camp Lejeune and Camp Pendleton?
MS. ELLISON: Objection; form.
THE WITNESS: That's -- that's what it appears.
BY MR. DOWLING:
Q. And there were separate analyses for Marines on the one hand and then civilian employees; is that correct?
A. That is correct.
Q. And you've testified that Ms. Rothchild was a civilian employee; correct?
A. Yes.
Q. And in the table -- in Table

11 --

A. Uh-huh.

Q. -- in Exhibit 15, isn't it a fact that that table reports a result showing civilians at Camp Lejeune had a relative risk of 3.1?

A. Yes.

Q. And that indicates a heightened risk of Parkinson's disease; correct?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: That's what it suggests.

BY MR. DOWLING:

Q. So this study reports a heightened risk for civilian workers at Camp Lejeune for Parkinson's disease as compared to Camp Pendleton?

A. That's what it appears to show, yes.

Q. And you did not discuss this report -- or this study in your report?

A. No.

Q. And you did not consider this study in formulating your opinion in this case?

A. Not specifically, no.

Q. Did you consider it in any way, shape, or form?

A. Not specifically, no.

(Whereupon, Exhibit 16 was marked for identification.)

BY MR. DOWLING:

Q. I'm handing you Exhibit 16, Dr. Gollomp. Exhibit 16 is another journal article by Frank Bove and others in the journal Environmental Health, which is entitled Evaluation of Mortality Among Marines, Navy Personnel and Civilian Workers Exposed to Contaminated Drinking Water at USMC Base Camp Lejeune: A Cohort Study.

Are you familiar with this study, sir?

A. I'm certainly familiar with Bove's name. I'm not sure I'm familiar with this specific study, but...

Q. And if you want to take a minute to review the abstract, please feel free so you have familiarity with that.

A. Yeah.

Q. Do you need a minute?

A. You can give me another minute.

Q. Okay.

A. Okay.

Q. And again, this is a mortality study, sir?

A. Yes.

Q. And in the Results section, did the researchers report an increased risk of developing PD among the Camp Lejeune civilian workers as compared to Camp Pendleton?

A. Yes.

Q. And what was that increased risk?

A. Well, that was only 21 percent.

Q. But still an increased risk?

A. So it looks. I have to look more carefully at the statistical analysis, but so it appears.

Q. And you did not consider this study in the course of formulating your opinion in this case?

A. No.

Q. And you don't rely on this study in any way in offering your opinion in this case?

A. No.

Q. What are the basic allegations of Mr. Welch's case?

A. That he has developed Parkinson disease, again, as a result of his exposure during his time at Camp Lejeune.

Q. And do you recall when Mr. Welch was at Camp Lejeune?

A. Again, I'd have to look back.

Oh, yeah. Here it is. I knew it was in here somewhere. He was in Camp Lejeune in the early 1970s.

Q. And how long was he at Camp Lejeune?
A. Almost a year.
Q. Did you do any kind of independent consideration of Mr. Welch's exposure to the water at Camp Lejeune, or did you rely entirely on Ms. LaKind and Ms. Bailey?
MS. ELLISON: I'll just note for the record it's Dr. LaKind and Dr. Bailey.
BY MR. DOWLING:
Q. Dr. LaKind and Dr. Bailey.
A. Yeah, I relied on their information.
Q. So no independent analysis yourself?
A. No.
Q. Do you know what Mr. Welch's water consumption patterns were while he was at Camp Lejeune?
A. I don't specifically recall.
Q. Do you know where he was billeted or lived while he was stationed

at Camp Lejeune?

A. Again, at this time, I don't remember specifically, though I remember reading about it.

Q. Do you know what the nature of his work was, his job or military occupational specialty while he was at Camp Lejeune?

A. Well, I know he was working as an advocate, actually. I knew he was a lawyer, but...

Q. Do you have an independent opinion about how much trichloroethylene Mr. Welch was exposed to at Camp Lejeune?

A. No.

Q. Do you have an independent opinion about how much tetrachloroethylene Mr. Welch was exposed to at Camp Lejeune?

A. No.

Q. So your opinion is entirely dependent upon Dr. LaKind and Dr. Bailey --

A. Yes.

Q. -- on those matters?
A. Yes, on that issue. Yes.
Q. So you did not consider Mr. Welch's exposure to trichloroethylene as a potential cause of his Parkinson's disease in this case?
A. Well, obviously, I was asked about it as part of this litigation, but I did not think it was a substantial factor in his case.
Q. But that's entirely dependent upon Dr. LaKind and Dr. Bailey's assessments?
A. Well, not entirely, but certainly that coupled with the clinical picture of this gentleman.
Q. But you said you didn't think that his exposure was substantial. How did you arrive at that conclusion?
MS. ELLISON: Objection; form.
THE WITNESS: Yeah, I don't think I said -- I didn't -- I didn't make any comment about

whether it was substantial or not. I just didn't think it was a substantial contributor.

BY MR. DOWLING:

Q. Okay. And what's the basis for you believing that his exposure to the water was not a substantial contributor to his Parkinson's disease?

A. Again, speaking more to the onset of his disorder which, based upon when it seems like he first began to become symptomatic, that's 40 years -- 40 years later. And at that time -- so that was in '21 -- he was -- at that time, he was 76 years old.

Q. I don't think I understand your response.

So are you saying you think it was just age and that the exposure did not in any way contribute to his development of Parkinson's disease?

MS. ELLISON: Objection; form.

THE WITNESS: Well, I didn't

exactly say age, but that's my implication, of course. I mean, he was 76 years old at that time. He was, at that point, 40 years after the exposure. We see tremor predominant in Parkinson's disease very commonly in this cohort, and never mind his head trauma, which I'm not so sure has much to do with his development of Parkinson's disease. I really think it's more an age-related thing since we see lots of people in their mid-70s who develop Parkinson disease.

BY MR. DOWLING:

Q. Okay. You've testified that the fact that his disease developed 40 years after his exposure --

A. Uh-huh.

Q. -- played into your opinion. I think you testified earlier there's no empirical data suggesting an end point to when exposure

may stop being a contributing factor.
Do you remember that testimony from this morning?
MS. ELLISON: Objection; form.
THE WITNESS: Yes, but I -- can you restate what you said? Because what you said is not exactly what I said.
BY MR. DOWLING:
Q. Okay. Well, is there empirically based information or data, scientific data, regarding the outer limit of latency in developing Parkinson's disease?
A. Okay. I think it's fair to say, as I said before, we don't -- we don't know that.
Q. Okay. You agree that Mr. Welch does, in fact, have Parkinson's disease?
A. Yes, I do.
Q. And you agree he's suffered disabling conditions as a result of the

Parkinson's disease?

A. Yeah, I think he's suffering meaningful disability. Sure.

Q. And does that include motor and nonmotor disabilities?

A. Yes.

Q. So what is -- just so I can fully understand your opinion, we can flip to Page -- I guess it starts on 11.

A. Yup.

Q. In terms of the etiology of Mr. Welch's disease, again, can we just go through symptomatically, and you can explain to me how you best understand the etiology of his Parkinson's disease?

A. Yeah. And -- sure. Glad to do that.

First of all, his age of onset is fairly typical of a cohort of people who have older onset Parkinson disease. This may be the most common cohort that any neurologist or Parkinson's disease specialist sees. Though we talk about the median age of

onset in the early 60s, there's clearly a big rise in the incidence as we get to the 70s and 80s, and he's -- he's right in that demographic.

He did not have any major issues with -- and let me know if I need to speak up.

He did not have any major structural brain problems. The angioma he had and the probable secondary seizure disorder are not known as risk factors for Parkinson's disease. He does not have any apparent genetic or other suggestive inherited risks -- i.e., family history -- for the disease.

He has had some head trauma, but none of it -- how shall we put this? He did not have -- how shall we put this? He did not have any really severe head trauma.

As far as the well-defined neurotoxic drugs and metals, he was never exposed to those. He did not have any definable pesticide exposure.

I made a point of maybe the air pollution living in Southern California might be somewhat of an issue, but I don't really think it's that big a deal. And I felt by far and away, his greater risk factor is simply the depletion of dopaminergic neurons as he's aged and he's in a high incidence cohort.

And here I say it started about 74. I said earlier 76.

Q. So you don't believe the head injuries or traumas, or however you want to characterize them, are a significant factor in this case?

A. I don't think they are.

And you didn't cite one of my articles on that one with Eugene Dulaney and Matt Stern, but that came out around the same time of this other one you cited, and -- but this doesn't rise to the level of what we published even back then. And there have been multiple studies since that time.

Q. What would -- for my

benefit, what would be sort of the -- how would you characterize the threshold for inclusion in an increased risk?

MS. ELLISON: Objection; form.

THE WITNESS: Basically, a concussive head injury with disturbance of memory or consciousness or some alteration of cognitive function with a head trauma.

It doesn't sound like from what Mr. Welch described to me any of these episodes are likely -- although he got pretty beaten up a few times, that's for sure.

BY MR. DOWLING:

Q. And again, a hypothetical like I asked you earlier this morning, assuming whoever the decision-maker is in this case --

A. Yeah.

Q. -- decides they don't credit Dr. Bailey and Dr. LaKind's analysis

here --

A. Sure.

Q. -- and they conclude that Mr. Welch was exposed to TCE and PCE in an amount sufficient to cause his disease, that should change your ultimate opinion in this case; right?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: I really don't think so because he really is a very typical demographic of what I see five, 10 times a day in my office. This is the population I take care of and -- I mean, obviously, there are -- it's a variation of ages, but this is the most common cohort I see, and they haven't had toxic exposures.

BY MR. DOWLING:

Q. But in this hypothetical we're discussing now --

A. Sure.

Q. -- if he were exposed to a

toxic level of PCE or TCE, you would acknowledge that that exposure could, at least as likely as not, be the cause of his Parkinson's as his age?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: I would certainly place age well above that threshold.

BY MR. DOWLING:

Q. How well above that threshold?

A. Well, I can't give you an exact number, but very, very substantially higher.

Q. What gives you the confidence to do that?

MS. ELLISON: Objection; form.

THE WITNESS: Well, the confidence is, again, speaking just purely demographically of who our patient population is, that he is smack in the middle of the

cohort I see and all my colleagues who see Parkinson's patients see all the time without any known predisposing factor like this.

BY MR. DOWLING:

Q. And so no matter what the fact-finder concludes about how toxic his exposure was, you would not change your opinion that that's not a contributing factor here?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: In this particular case, I would not change my opinion, no.

BY MR. DOWLING:

Q. No matter what?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: Obviously, there's always something unforeseen. But based upon as you framed the hypothetical, no.

MR. DOWLING: Can we take a

quick break?

THE VIDEOGRAPHER: Going off the record. The time is 2:12 p.m.

(Whereupon, a brief recess was held.)

THE VIDEOGRAPHER: We are now back on the record. The time is 2:18 p.m.

BY MR. DOWLING:

Q. Dr. Gollomp, I want to turn your attention to Page 12 of your report on Mr. Welch, Exhibit 5. And in the third full paragraph, you write that, We cannot assign any specific etiology of his disorder save for possibly his advancing age.

A. Uh-huh.

Q. Is age itself a cause of Parkinson's disease?

A. Well, in the scheme of things, it's not so much age, but it's dopaminergic cell depletion, and dopaminergic cell depletion correlates with symptomatic Parkinson's disease.

So, yes, age doesn't cause it, but we know that there's an age-related decline of dopaminergic neurons. And there's, obviously -- like we talked about much earlier today, when you reach that threshold of below 70 percent, losing 70 percent of the population of dopaminergic neurons, you run into the probability of developing clinical Parkinson's disease. And that is generally associated -- that figure, of course, is associated with advancing age.

Q. So age is not a causal agent in the development of Parkinson's disease?

A. Well, it matters how you look upon age. Age is associated with the depletion of dopaminergic cells. And why there's a difference from one person to the next, that's obviously -- we've talked about that.

But it's fair to say that dopaminergic cell depletion is the cause

of Parkinson's disease, and it is strongly associated with aging.

Q. Okay. So dopaminergic cell loss is a potential cause -- or is the cause of Parkinson's disease?

A. Correct.

Q. And we've reviewed some studies today that suggest dopaminergic cell loss has a consequence of exposure to trichloroethylene; correct?

A. Correct.

Q. But you did not consider those studies as a factor in formulating your opinion about Mr. Welch?

MS. ELLISON: Objection; form and foundation.

THE WITNESS: I did not consider that TCE exposure was a cause to a reasonable degree of medical certainty, correct.

BY MR. DOWLING:

Q. And the same question for Ms. Rothchild. You did not consider that TCE or PCE was a cause of the

dopaminergic --

A. That's okay.

Q. -- neuron loss for Ms. Rothchild?

A. Correct.

MR. DOWLING: I think we'll pass the witness.

MS. ELLISON: No questions from our side.

Just flagging that Dr. Gollomp will review and sign his deposition, but nothing from us.

MR. DOWLING: Okay. Great.

THE VIDEOGRAPHER: All right. This marks the end of today's deposition. The time is 2:21 p.m. We're going off the record.

(Whereupon, the deposition was concluded at approximately 2:21 p.m.)

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THE COURT REPORTER: Would counsel like a copy of the

transcript?

MR. DOWLING: We have a standing order.

MS. ELLISON: We also have a standing order. We don't need a rushed transcript. And the video we won't be ordering, but I may request it in the future.

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CERTIFICATION

I, EILEEN P. BARTH, hereby certify that the testimony and proceedings in the foregoing matter are contained fully and accurately in the stenographic notes taken by me and are a true and correct transcript of the same.

_____

EILEEN P. BARTH
Certified Shorthand Reporter

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Please read your deposition over carefully and make any necessary corrections. You should state the reason in the appropriate space on the errata sheet for any corrections that are made.

After doing so, please sign the errata sheet and date it. It will be attached to your deposition.

It is imperative that you return the original errata sheet to the deposing attorney within thirty (30) days of receipt of the deposition transcript by you. If you fail to do so, the deposition transcript may be deemed to be accurate and may be used in court.

ACKNOWLEDGEMENT OF DEPONENT

I, _____, do hereby certify that I have read the foregoing transcript of my deposition and find it to be a true, correct and complete transcription of the answers given by me to the questions therein propounded, except for the corrections or changes in form or substance, if any, noted in the ERRATA.

_____

NAME DATE

Subscribed and sworn to me this

_____ day of _____,

20____.

My commission expires:_____

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Notary Public

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ERRATA

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

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

(A) to review the transcript or recording; and

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

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

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