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SUPERIOR COURT OF CALIFORNIA

COUNTY OF ALAMEDA

BEFORE THE HONORABLE WINIFRED Y. SMITH, JUDGE PRESIDING

DEPARTMENT NUMBER 21

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COORDINATION PROCEEDING)	
SPECIAL TITLE (RULE 3.550))	
)	
ROUNDUP PRODUCTS CASE)	JCCP No. 4953
)	
_____)	
THIS TRANSCRIPT RELATES TO:)	
)	
Pilliod, et al.)	Case No. RG17862702
vs.)	
Monsanto Company, et al.)	Pages 3457 - 3654
_____)	Volume 22

Reporter's Transcript of Proceedings

Wednesday, April 17, 2019

Reported by: Kelly L. Shainline, CSR No. 13476, RPR, CRR
Stenographic Court Reporter



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I N D E X

Wednesday, April 17, 2019

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1 Wednesday, April 17, 2019

8:53 a.m.

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P R O C E E D I N G S

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(Proceedings commenced in open court out of the presence of the jury:)

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THE COURT: So there are a couple things on the agenda. We don't have a lot of time. I know Dr. Benbrook is here this morning. The jurors aren't all here yet so we have a few minutes.

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I'm going to park the judicial notice for the moment just because it involved a lot of documents and probably a much longer discussion than we can have right before 9:00 o'clock. But I will say -- I didn't take the binders home, I took the briefs home just to review them last night.

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And I looked at some of the documents this morning. I need more time to actually look at what it is you want me to admit. Because on the documents that I've already ruled on, I'm not inclined to change my rulings on those. Your authority didn't change my mind about the scope of judicial authority.

22

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25

Now, having said that, the documents in your binders are a little different. Some of them are *Federal Register*, some of them are complete reports with short appendices. Generally speaking the reports would

1 be judicially noticeable but not the appendices of the
2 underlying -- I still disagree about all the underlying
3 data to be judicial noticeable.

4 So just sort of a broad stroke based on kind
5 of a cursory review.

6 So I don't know which ones you think you need
7 in order to cross-examine Dr. Benbrook. You can try to
8 have a shorter conversation if that -- if we need to.

9 So what I would ask you to do is just identify
10 the documents that you think you need today, and I can
11 try to make a ruling on those. And then we can have a
12 little longer discussion on the others.

13 I noticed that there was probably four or five
14 *Federal Registers* -- documents from the *Federal*
15 *Registers*. I don't think there's too much dispute about
16 judicially noticeable the documents in the *Federal*
17 *Register*. But the others I think are a little more
18 complicated.

19 **MR. WISNER:** I think the one in the *Federal*
20 *Register*, it's not a question of whether or not they're
21 judicially noticed. It's the relevance. They're about
22 food residues.

23 **THE COURT:** So relevance is a whole other
24 story. You can object based on relevance.

25 **MR. WISNER:** That's right.

1 **THE COURT:** So judicially noticeable doesn't
2 mean admissible. It just means judicially noticeable.

3 So you can have that conversation whenever --
4 or make that objection whenever -- because there was
5 also another report that related to something in
6 pesticides, but I wasn't sure whether or not -- in your
7 brief whether or not they're actually contained in
8 Roundup or what the relevance is. I don't know.

9 So I couldn't determine that as one of my
10 questions but probably not going to have a lot of time
11 to talk about that this morning.

12 I do want to talk about the bench brief about
13 Dr. Benbrook.

14 **MR. WISNER:** Should we excuse the witness?

15 **THE COURT:** Yes, please.

16 (Witness exited the courtroom.)

17 **THE COURT:** So I think Dr. Benbrook and
18 Dr. Raj are simple. I can just deal with that. So I'm
19 going to let the conversation about Raj come in, that's
20 fine.

21 Rubenstein, I've looked at that and I've
22 looked at it. My first instincts I think are correct
23 because I think anecdotal information about his
24 experience is not expertise. Just anecdotal
25 conversation about what he's done. I'm not really going

1 to entertain a lot more conversation about it.

2 **MR. MILLER:** I understand, Your Honor.

3 **THE COURT:** But I will tell you what I will
4 let in.

5 **MR. MILLER:** All right.

6 **THE COURT:** This is 44 -- is it 44, 45, 46?

7 **MR. MILLER:** 31:17 to 25, Your Honor.

8 **THE COURT:** I don't think I was looking at
9 that.

10 **MR. MILLER:** It goes to 32:7 actually.

11 **THE COURT:** So, you know, my concern about
12 this is that it's his conversation about -- even 31 to
13 32 is somewhat offhand. He's not really saying --
14 there's no underlying data or opinion or information
15 that supports it. He just says, "Oh, yeah, they're
16 known."

17 And my concern is that he's a treating
18 physician, and to allow him to make just general
19 statements like that, it lends a lot of support or
20 credence to the conclusions, which are, they're related,
21 when he has no underlying expertise or data to support
22 what he's saying. So 31 and 32 is out.

23 I'm will allow him to answer the question when
24 his interest begin --

25 (Telephone interruption.)

1 **THE COURT:** -- which would be 7 through 12 on
2 page 44. I'm sorry. Yeah, 7 through 12.

3 And the reason I'm eliminating the other lines
4 is he's come down with blood cancers. That's not
5 specific. That's not non-Hodgkin's lymphoma. That's
6 just blood cancers in general.

7 Again, just sort of making general statements
8 about what his patients came down with that are not
9 related specifically to NHL or some expertise about it,
10 again, lends, I think, some credibility to the
11 conclusion that these -- it's like a short end to the
12 conclusion which is, oh, yeah, blood cancers are related
13 to exposure of pesticides. And then that's it.

14 So --

15 **MR. WISNER:** Your Honor, just keep going.
16 There's the lines 47:19 through 48:5 which is sort of a
17 counter for that if you keep going.

18 There's actually a specific discussion about
19 whether or not Roundup causes cancer. I assume that
20 comes out as well.

21 **THE COURT:** Well, this is in any of the papers
22 where you've written --

23 **MR. WISNER:** That part I don't mind up through
24 47:22. But from 47:23 to 48:5.

25 **THE COURT:** Right. That will come out.

1 Because, again, I just think it's general
2 conversation. So whatever is related to the more
3 general conversation about basically conclusory
4 conversation about it as opposed to specific opinions
5 and/or data that supports it.

6 So: When this interest begin, sir.

7 I would say January 1995. I did three months
8 in a row on the blood and bone marrow transplant unit.
9 Period.

10 **MR. MILLER:** I'm sorry. Where are we,
11 Your Honor?

12 **THE COURT:** That's up to line 6 on page 45.
13 So then lines 4 through 10 -- I'm sorry -- line 4
14 through 8. I don't even know if you want to include
15 this because it kind of cuts him off mid sentence, but:
16 I did a lot of leukemia or some leukemia lymphoma time
17 too. Period. So that's it on that.

18 How are we doing on jurors?

19 **COURT ATTENDANT:** Let me check right now.

20 **MR. BROWN:** Then, Your Honor, on the Benbrook
21 issue, you indicated --

22 **THE COURT:** Okay. So talking about
23 Dr. Benbrook, it looks like this bench brief really is
24 sort of throwing up a smoke signal that there may be an
25 issue based on what happened in *Johnson*. I gather

1 that's really the impetus for this.

2 **MR. BROWN:** And as an adjunct to it,
3 Your Honor, is an article that was published this month
4 that was prepared by Robin Mesnage, Charles Benbrook,
5 and Michael Antoniou. And apparently it was published
6 in something called *Food and Chemical Toxicology*, and it
7 was published this month online and it came well after
8 the disclosures in this matter.

9 And in this document or in this paper, which
10 is really not a scientific paper, but it goes into a lot
11 of issues concerning GMOs, it goes into a lot of
12 information concerning misleading information being
13 provided by manufacturers. It goes into --

14 **THE COURT:** Is this an exhibit today?

15 **MR. BROWN:** Yeah, I anticipate -- I anticipate
16 that they intend to use this. And it's -- this is not
17 something that has been produced in discovery or --

18 **THE COURT:** Well, let me just stop you.
19 Are you going to use it?

20 **MR. WISNER:** Yeah, absolutely. It was already
21 used with Dr. Sawyer extensively. It's been published
22 to the jury and discussed at length.

23 **THE COURT:** That document?

24 **MR. WISNER:** Yeah. I'm not entirely sure what
25 the objection is at this point. This is about the POEA

1 toxicity, and it was published by scientists including
2 Dr. Benbrook, peer reviewed. Dr. Sawyer talked about it
3 with the jury and talked about how POEA was more toxic
4 than just glyphosate.

5 That was Dr. Benbrook's article. We showed it
6 to the jury and we discussed it. That's the only part
7 of that article that will be used today. We're not
8 going to talk about GMOs, that's excluded. And we're
9 definitely not going to talk about -- what was the other
10 issue? Misleading? We're not going to talk about that
11 stuff.

12 **MR. BROWN:** Misleading. There's information
13 in here about poisoning cereal and children eating
14 cereals.

15 **THE COURT:** So to the extent that it's been
16 published, I don't think there's really an objection.
17 If there's anything else that you're planning beyond
18 what's already been published, then tell me now --

19 **MR. WISNER:** Absolutely not.

20 **THE COURT:** -- so that I can -- you know, we
21 can talk about that before Dr. Benbrook gets on the
22 stand and we're talking sidebars.

23 **MR. BROWN:** Yeah, but Your Honor, when you say
24 "published," this article, I don't recall this article
25 being published to the jury. And what he's saying is

1 it's Dr. Benbrook's article. And he's talking about the
2 substance of what it is as opposed to the particular
3 article which Dr. Benbrook is on here as an author.

4 And it's --

5 **THE COURT:** Why don't we first clarify whether
6 or not any part of it has already been published. I
7 think that might --

8 **MR. EVANS:** Your Honor, I believe in the
9 context of Dr. Sawyer talking about POEA, the article
10 was published with respect to POEA. But Dr. Sawyer was
11 already talking about POEA, and this is a published
12 article so I wasn't going to object because we had an
13 agreement that published articles can be displayed.

14 **THE COURT:** Okay.

15 **MR. EVANS:** But that's a completely different
16 discussion when you have a toxicologist. You know,
17 Dr. Benbrook today, he's an economist. So the part of
18 this article that he has expertise on is not POEA, and
19 it's also cumulative to what Dr. Sawyer's already
20 testified about.

21 I mean, I'm not -- I don't know why we're
22 going to have an economist go through the POEA piece of
23 the puzzle that we've already heard about, candidly from
24 several people.

25 **THE COURT:** Okay. So what --

1 **MR. WISNER:** So I'm trying to get my objection
2 straight here. So the first one was --

3 **THE COURT:** Okay. So it's already been
4 published so that portion of published talking about
5 POEA. I think we're talking relevance. I think
6 Mr. Evans' objection at this point is relevance because
7 he's an economist and he's here to talk about something
8 else and not opine about POEA.

9 And I don't know if his expertise includes
10 whatever that particular part of the article is. You'd
11 have to show it to me so I can figure out is it
12 scientific -- was there some part of it that was
13 scientific that really wasn't his bailiwick but there
14 was some part of it that was economic that was his
15 bailiwick?

16 **MR. WISNER:** So, first of all, this idea that
17 he's just an economist is just not true. He's published
18 multiple peer-reviewed literature about the science
19 involving glyphosate. He's currently a researcher on an
20 ongoing project involving the toxicity of glyphosate in
21 farm workers and animals in the Midwest. He is a
22 scientist.

23 **THE COURT:** Just give me an overview. What's
24 his background?

25 **MR. WISNER:** He has a Ph.D. in economics, but

1 then he proceeded to work basically his whole life in
2 pesticides. He's been doing research both on the
3 economics of it, the regulatory aspect as well as the
4 science. He's published in this area. And we'll lay
5 that foundation in spades today.

6 One of those publications is the very one that
7 they're talking, which is a scientific publication,
8 peer-reviewed, and published in an academic journal
9 where he talks about the toxicity of these various
10 surfactants.

11 Now to address the issue of relevance, we're
12 not going to be cumulative. We're going to touch on it
13 very briefly. I'm going to ask him what they looked at
14 when they came to these conclusions because the jury has
15 already heard from Dr. Sawyer. He can talk about that
16 since he wrote it. And that's about it.

17 So I think that it's valuable testimony
18 insofar as understanding what this article supports,
19 coming from what it's based on, and how they came to the
20 conclusions that they did.

21 But finally, Your Honor, this discussion of
22 POEAs and their toxicity is in Dr. Benbrook's report.
23 So it's not like this is a new opinion. So all of this
24 seems to be -- I'm not clear what the problems are.

25 **THE COURT:** Well, I'm assuming that whatever

1 the other objectionable portion of it is, which is GMOs
2 and other things that are excluded, aren't going to be
3 touched on.

4 **MR. WISNER:** That's right.

5 **THE COURT:** So as long as -- well, let's just
6 see. I mean, if you lay the foundation, you've laid the
7 foundation, he can testify. If you haven't and there's
8 no objection, I'll rule on it at the time. I don't
9 think that preliminarily excluding something based on
10 not enough information is something I'm going to do.

11 **MR. WISNER:** Sure.

12 **MR. MILLER:** Your Honor, I'm not rearguing
13 Rubenstein. Your Honor has ruled. But Your Honor ruled
14 yesterday as well that it was either going to be in or
15 out. So we --

16 **THE COURT:** I did exclude the other several
17 lines at the end of the conversation.

18 **MR. MILLER:** Right. I just wanted to show
19 Your Honor, page 55, if we're not allowing
20 Dr. Rubenstein to say that pesticides are a risk, you
21 clearly can't have him say that smoking or autoimmune
22 disorders are a risk or being older without saying that
23 pesticides are a risk.

24 So we're asking the Court to strike page 55,
25 lines 6 right through 56, line 25. It wouldn't make any

1 sense to have him be precluded from saying what he knows
2 as an expert that pesticides are a known risk and yet
3 have counsel go on and talk about every other risk
4 factor that they want to talk about.

5 **THE COURT:** Well, no, because he's talking
6 about in your appearance as an oncologist and
7 specifically someone who was working with non-Hodgkin's
8 lymphoma, specifically PCNSL, you see other risk factors
9 that are signals for this disease.

10 So he's talking about something that is within
11 his expertise as a treating oncologist, where the other
12 information is anecdotal in his history. That's the
13 difference.

14 **MR. MILLER:** Squarely not, Your Honor.
15 Page 31, line 17. That's simply not accurate, with all
16 due respect. He says at page 31, line 17: In the
17 course of your treatment of Alberta Pilliod, that it's
18 clear it's in the course of his treatment, and with your
19 experience -- and no one has challenged he is the
20 world's leading expert on this -- is pesticides a known
21 association with non-Hodgkin's lymphoma like the one she
22 had? And the answer is yes.

23 So it's impossible --

24 **THE COURT:** No. The answer is:

25 Well, pesticides are known to be

1 associated with blood cancer.

2 **MR. MILLER:** Which is what she has.

3 **THE COURT:** (Reading:)

4 There's a lot of data in the
5 literature that blood cancers, leukemias,
6 and lymphomas are strongly associated with
7 blood cancers.

8 **MR. MILLER:** See the next question and answer.

9 She has a blood cancer like the type
10 of blood cancer she has.

11 So for him, either we go all in or all out.
12 Either he's allowed to say that or clearly we can't go
13 on and have him say smoking or getting older or
14 autoimmune disorders. Either it all comes in or it all
15 comes out in any fair playing field. That's all I'm
16 asking.

17 **THE COURT:** I'm not beating a dead horse. I
18 don't want to keep talking about this. I've ruled.
19 Right or wrong, end of story.

20 **MR. MILLER:** Has Your Honor ruled on page 55
21 or 56, is all I'm asking?

22 **THE COURT:** No, I'm not. End of story. I
23 ruled.

24 So let's get back to Dr. Benbrook.

25 Is that it with respect to Dr. Benbrook?

1 There were some other issues regarding his political
2 affiliation and just --

3 **MR. WISNER:** Not coming in. I met with
4 counsel yesterday after I saw the bench brief, and I
5 told them Dr. Benbrook is not going to talk about
6 politics at all. So that's not an issue.

7 There was one topic that said anything that
8 might suggest that Monsanto misled the EPA, and I spoke
9 with counsel and I said, listen, that's an incredibly
10 broad umbrella. I mean, there's facts that he's going
11 to talk about that could reasonably lead to a conclusion
12 that they misled the EPA. But he's not going to say
13 that Monsanto misled the EPA. That's not coming out of
14 his mouth.

15 We are going to talk about, for example, the
16 tumor story and what happened there. And that story and
17 the facts surrounding that, someone could conclude it
18 falls under the "might suggest that Monsanto misled the
19 EPA," but he's not going to say that Monsanto misled the
20 EPA. He's going to say this happened, this happened,
21 this happened.

22 That was the only consideration I had about
23 the bench brief, it was vaguely overbroad and swept in a
24 potential amount of stuff that would be --

25 **THE COURT:** I've forgotten the tumor story.

1 Is this the magic tumor?

2 **MR. WISNER:** I'm not allowed to call it magic,
3 but, yes. The magic tumor story.

4 **MR. BROWN:** Your Honor, what you have
5 indicated that Dr. Benbrook can testify about is that
6 Benbrook may provide testimony that summarizes and
7 explains the regulatory framework for herbicide
8 regulation, including Monsanto's legal obligations on
9 registration matters, period.

10 The rest of the *Sargon* order excludes his
11 testimony concerning all of these other issues. And the
12 reason for it is, is because he has no expertise in any
13 area that is relevant to this particular case.

14 Even the issue that this agricultural
15 economics is not relevant within the context of this,
16 and if the Court looks at -- again at page 5 of the --
17 I'm going to have the tentative order on *Sargon* motions,
18 motion for summary judgment.

19 **THE COURT:** There was a final order, by the
20 way.

21 **MR. BROWN:** Yeah, but -- and I just don't have
22 that in my binder.

23 **THE COURT:** Okay.

24 **MR. BROWN:** But it clearly delineates what
25 Dr. Benbrook is being called to testify about.

1 And, you know, we want to slice the bologna
2 very thin here by saying how close can we walk to the
3 line, and I think that that is something that we want to
4 avoid.

5 And so we've got to read this in the true --

6 **THE COURT:** Let me just interrupt you to say
7 this, because I'm not oriented to precisely what he's
8 going to say that's objectionable about the tumor.

9 Why don't you walk me through what that looks
10 like.

11 **MR. WISNER:** Your Honor, I will. But let me
12 back up really quickly.

13 So his report is like 300 pages long, and it
14 has a whole bunch of facts and stuff that he's proffered
15 to offer testimony about.

16 Monsanto moved to exclude specific portions of
17 that testimony. And Your Honor ruled on the specific
18 portions of his report. This is not an inclusive
19 statement of what he's going to testify. It is your
20 ruling on what's in front of you, right, and you're
21 going through the topics and saying granted or denied.

22 But if there's stuff that they didn't move to
23 exclude, that isn't excluded by virtue of them not
24 having raised the issue with the Court in the first
25 place. That's a logical fallacy.

1 So Mr. Brown said he's only allowed to testify
2 about that, and that's not what the Court had ordered.
3 If they had moved to exclude reference to the magic
4 tumor story, right, which they did and they lost in a
5 motion in limine.

6 So him talking about the magic tumor story to
7 the extent he's qualified to talk about it, which he's
8 entirely capable of doing, I think it's not even at
9 issue in this order. They're trying to sweep in
10 hundreds of pages of uncontested opinions and by saying,
11 well, you only said he can testify..., that's just not
12 correct.

13 **THE COURT:** Well, the motion was to exclude
14 all of his testimony.

15 **MR. WISNER:** Sure.

16 **THE COURT:** And so I'm just looking at the
17 order. So they did move to exclude everything. And
18 then I said, okay, he can testify about the following
19 three.

20 **MR. WISNER:** That's not correct. They didn't
21 move to exclude everything. They moved to exclude him
22 generally under *Sargon* as not being qualified.

23 **THE COURT:** Right.

24 **MR. WISNER:** You denied that. You didn't go
25 down that road in that order.

1 **THE COURT:** No, I didn't. But I did
2 circumscribe what he could say.

3 **MR. WISNER:** Well, fair enough, about the
4 things that they challenged. Your Honor didn't read his
5 300-page report.

6 **THE COURT:** No, you're right. I did not.

7 **MR. WISNER:** They didn't challenge the
8 300-page report. They didn't say this topic he's not
9 qualified to do, this topic --

10 **THE COURT:** I skimmed it because I wanted to
11 see what was in it, but I couldn't tell you right now
12 what's in the 300-page report.

13 **MR. WISNER:** Sure. But my point is if I had
14 known -- so I can only respond to what they challenged.
15 That's how a motions practice works.

16 **THE COURT:** Well, let me ask you this. How
17 does the tumor story work into just explaining the
18 regulatory framework for herbicide regulation --

19 **MR. WISNER:** It doesn't.

20 **THE COURT:** -- the legal obligations and
21 registration matters?

22 **MR. WISNER:** It could fall under that, but I
23 don't think that's what the issue is here. Your Honor
24 didn't exclude him testifying about that.

25 **THE COURT:** No, I specified about what he

1 could talk about. That was my intent, was to specify
2 what he could talk about.

3 There was a motion to eliminate him under
4 *Sargon*. And I said no, I'm not going to eliminate him
5 under *Sargon*. I will allow him to talk about the
6 following few things, which are testimony that
7 summarizes and explains the regulatory framework for
8 herbicides including description of Monsanto's legal
9 obligation on registration matters. The Court orders
10 that Benbrook may not testify on whether Monsanto
11 complied with legal obligation. Orders that he may not
12 testify on the following other things.

13 **MR. WISNER:** Yeah.

14 **THE COURT:** And I think what you're telling me
15 now is --

16 **MR. WISNER:** Because those things that you
17 ruled on were things specifically challenged by
18 Monsanto.

19 **MR. BROWN:** Your Honor, that's disingenuous.

20 **MR. WISNER:** Hold on. Let me finish my
21 argument.

22 **THE COURT:** I have to go back to the *Sargon*
23 motion now.

24 **MR. WISNER:** Please. Because I've read them
25 closely, and they did not -- they did not specify topics

1 that you ruled on. And if they're -- you can't do that.
2 You can't say -- they did challenge everything and you
3 didn't strike him as unqualified across the board. So
4 they lost the general -- that was a small portion of the
5 challenge.

6 Then they said, okay, this opinion, this
7 opinion, this opinion, this opinion, and you ruled on
8 those opinions that they challenged.

9 They never challenged his opinions about the
10 magic -- actually they did. They tried doing it in the
11 motion in limine.

12 **THE COURT:** Well, what does that have to do
13 with his expertise on -- whatever his expertise is?
14 What does the magic tumor story -- how does that relate
15 to whatever expert opinion he has about registration and
16 compliance? Maybe that's the question I'm really
17 asking.

18 **MR. WISNER:** Sure. Fair enough.

19 He's an expert in the regulatory process at
20 the EPA. He can walk us through how -- we have all
21 these documents that are in evidence, that came into
22 evidence already, they're already in. And he can talk
23 about what they mean and what the obligations of
24 Monsanto were at that point, what that classification
25 meant. And so he can walk through the story and he can

1 explain from a regulatory perspective what was going on.

2 **THE COURT:** Okay.

3 **MR. WISNER:** So I think that's 100 percent
4 within that framework.

5 **THE COURT:** So is this magic tumor story --
6 I'm sorry, I keep calling it a magic tumor story.

7 **MR. WISNER:** I know. It's catchy.

8 **THE COURT:** But whatever, so is the tumor
9 report part of that in some fashion?

10 **MR. WISNER:** Absolutely. Because the entire
11 interchange is with the EPA. Right? And so they're
12 saying, oh, we want you to do another study, data call
13 in. What does "data call-in" mean? I need him to
14 explain these things.

15 I need him to explain what happened -- for
16 example, he's going to talk about that IBT and what that
17 IBT document that's in evidence means. What does it
18 mean when it says data call-in? What does it mean when
19 it says it's invalid? I'm going to tie it to the
20 current EPA report. I'm going to walk him through all
21 the stuff that's come into evidence already so the jury
22 has some context. And that's all in his report. And
23 that wasn't even moved to be excluded.

24 So --

25 **MR. BROWN:** Your Honor, he keeps talking about

1 a report. And let me be clear that this is a report
2 that was prepared not in this case. Okay? So it was
3 prepared in some other case.

4 And in anticipation of the testimony, it
5 was -- the motion was filed.

6 And the Court is absolutely correct because
7 the motion was to exclude Dr. Benbrook entirely because
8 all he has done is read some literature and then he
9 wants to render opinions about it.

10 Now, we've heard already from Dr. Sawyer.
11 We've heard from Chris Portier. We've heard from
12 Dr. Jameson. And those documents that he's referring to
13 that have come in have been testified to by all of those
14 people.

15 **THE COURT:** Okay.

16 **MR. BROWN:** And what the Court has said, and
17 again going back to the order, is the Court reserves
18 trial -- reserves for trial whether Benbrook may explain
19 the context and possible meaning of regulatory technical
20 documents, which have already been testified to on three
21 occasions by the witnesses who've gone before Mr. or
22 Dr. Benbrook.

23 And, again, Your Honor, Dr. Benbrook is not a
24 toxicologist, he's not an epidemiologist, he's not a
25 medical doctor, he is not -- he is an agricultural

1 economist. And that does not qualify him to simply read
2 articles, formulate opinions that are consistent with
3 his own personally held beliefs, and then to come in and
4 proselytize to the jury.

5 **THE COURT:** I guess counsel is telling me that
6 he is an expert because -- or he's going to attempt to
7 lay the foundation as an expert, I guess, in this area.
8 And I don't know whether or not he was offered for that
9 in his -- you know, I'd have to go back do the
10 designations --

11 **MR. WISNER:** Sure.

12 **THE COURT:** -- to see how he was -- which I
13 don't have in front of me right now either.

14 **MR. WISNER:** Just to be clear, so much factual
15 inaccuracy here.

16 **THE COURT:** I'm just asking what was he
17 offered as? Because it's 9:20 and the jurors are here.

18 **MR. WISNER:** Because that report that he said
19 wasn't in this case was disclosed in this case
20 specifically as part of the designation. So that's just
21 completely untrue.

22 **THE COURT:** So what opinions did -- you know,
23 if I'd known we were going to have this kind of fight, I
24 would have suggested we stay later yesterday because now
25 we're opening up a whole, you know, front that I had not

1 anticipated having to discuss.

2 But the designations, what exactly was he
3 designated to testify about?

4 **MR. WISNER:** We served a 300-page report with
5 all of his opinions in detail in this case. It's the
6 same one from the MDL, and we served it in this case.
7 So they had full knowledge about it. They chose not to
8 depose him. I'm not sure why they chose not to.

9 Second, Your Honor, and this is another
10 factual inaccuracy, the very documents that he says
11 other experts have testified about, they haven't. They
12 weren't even in evidence yet. They just came into
13 evidence through the videos that were just played. So
14 that's why they're going to be talked about now, we're
15 going to explain the technical aspects of them.

16 This -- and that he's not an expert, he's just
17 an economist, also factually untrue. He's published
18 scientific literature on this very issue in
19 peer-reviewed articles that they had access to and were
20 fully disclosed before he gave his opinion.

21 So I'm not sure what Mr. Brown is talking
22 about. Maybe he hasn't been involved in the litigation
23 up to this point. But this is the facts.

24 **MR. BROWN:** I think I have. And by virtue of
25 publishing an article does not make someone an expert on

1 any particular point.

2 **THE COURT:** Does anyone have his report, by
3 chance?

4 **MR. BROWN:** Yes, I have it here, Your Honor.

5 **THE COURT:** Can I see it? If you have it.

6 **MR. WISNER:** And to be clear, Your Honor,
7 we're not going to offer any opinions that you excluded,
8 right. He's not going to talk about Monsanto's motive
9 or any of that stuff.

10 **MR. BROWN:** And really under CCP
11 Section 2034.010, incorporating a report from some other
12 case does not even satisfy the requirements of the
13 section. So if he's -- if he's citing to and saying,
14 well, we're -- he's going to testify about everything
15 he's testified to over the last 15 years, is not in
16 compliance with the code. He's supposed to say
17 specifically what he is going to be offered in this case
18 and specifically what is being offered in the case.

19 **MR. WISNER:** Your Honor, we specifically gave
20 them this report --

21 **THE COURT:** Did he testify to this stuff in
22 the *Johnson* case? Or --

23 **MR. WISNER:** Yes. And we specifically served
24 this very report as part of our CCP disclosures. Again,
25 factually untrue. I'm sorry. I don't know why

1 Mr. Brown is not familiar with what's happened in this
2 litigation, but that's the facts of it, Your Honor.
3 I've been doing it for the last three years.

4 **MR. BROWN:** Doing something.

5 **MR. WISNER:** Not making stuff up.

6 **THE COURT:** Okay. So I'm going to take a
7 break and see where the jurors are.

8 And I'm not exactly sure. I feel like I got
9 blindsided this morning, and I don't appreciate it.

10 **MR. WISNER:** Me too, Your Honor.

11 **MR. BROWN:** I take responsibility for that,
12 Your Honor. It's my fault. I apologize.

13 (Recess taken at 9:23 a.m.)

14 (Proceedings resumed in open court out of the
15 presence of the jury at 9:34 a.m.)

16 **THE COURT:** I don't have time to sort through
17 this. It's just really a lot. So I'm going to say
18 this.

19 The order that I issued and the order that
20 Judge Karnow issued, which was one of the bases on which
21 I reviewed this, was in the order it states
22 specifically: Benbrook is offered as an expert -- this
23 was my summary of how he was offered -- as an expert on
24 whether Monsanto's conduct is as a pesticide
25 manufacturer and registrant comports with its obligation

1 and stewardship responsibilities.

2 Had no idea, concept that was also being
3 offered was expert testimony on the science. That's not
4 part of what I understood his proffered expertise was
5 on, that this was limited to laying of conduct as a
6 pesticide manufacturer, registrant, and comports with an
7 obligation and stewardship responsibilities.

8 Now I looked basically at the table of
9 contents, and, yes, there is a lot more in his report.
10 But what else is in his report has a lot to do with
11 mouse oncogenicity. That was not my expectation that he
12 was going to touch on those subjects. I thought he was
13 going to touch on a fairly narrow subject because there
14 are all kinds of experts on all the other stuff.

15 **MR. WISNER:** Sure.

16 **THE COURT:** So I'm not sure where you're going
17 to with this, where you want to go with this. I
18 can't -- I'm not going to make any preliminary rulings
19 because we have to wing it. Here we are. But that
20 would be my expectation with respect to Benbrook's
21 testimony.

22 You know, whether or not -- whether there's
23 factual testimony that touches on whether they misled
24 the EPA or not, that's a fine line. I'll just entertain
25 objections if we get too close to the third rail, if

1 that's what I think is happening.

2 **MR. WISNER:** Sure.

3 **THE COURT:** But that's the general scope of
4 which I'm expecting him to testify and pretty much where
5 I expect you to go today.

6 **MR. WISNER:** Okay. I mean, your Honor, I just
7 want to clarify. I actually double-checked the
8 disclosures, and in our disclosures in this case we not
9 only specifically referenced the report that you just
10 got handed, we attach it and serve it. So I just want
11 to make clear for the record there's no question that
12 they were given this.

13 The other issue, Your Honor, is, you know,
14 there's a sort of timeliness issue here. Right?
15 Because as part of the *Sargon* process, they need to tell
16 us what in his disclosed opinions they're moving to
17 exclude. And they chose to focus on the issue that you
18 just discussed, stewardship obligations and whether or
19 not he complied. And your ruling specifies what he can
20 and cannot do with regards to that. And that's fine.

21 My understanding from the very beginning
22 because of the way this process works is if they had
23 other opinions of his that they sought to exclude, they
24 had to move to exclude them. And so when you read the
25 *Sargon* briefing, it's focusing on this exact issue and

1 Your Honor ruled on that issue.

2 But if they chose not to challenge anything
3 else -- I mean, I understand they're moving to exclude
4 his opinion in its entirety, but then they go on to say
5 his only opinion is stewardship, which is false as you
6 can see from his report.

7 And so at a certain point -- I agree we have
8 to wing it at this point, and you can tell me if we've
9 gone too far and we'll move on and do our thing. But at
10 a certain point, there has to be some frankness and
11 candor to the Court from the defense counsel about what
12 they're seeking to exclude.

13 And if they were seeking to exclude his
14 opinions about the oncogenicity studies from 1983
15 because he wasn't able to offer opinions about it, which
16 is clearly in his report, they should have moved to
17 exclude it. But they didn't. And in so failing to take
18 action, they waive that pretrial ruling.

19 Now if they want to argue he can't offer the
20 testimony at trial, I'm going to lay a foundation that
21 he's qualified to do it, and if he is, he is and we're
22 done.

23 But, I mean, at some point, you know, they
24 want to micromanage what we do, and that's fine, but the
25 *Sargon* process was their way to do that. And their

1 failure to take action has to mean something. Instead
2 they're sandbagging us the morning before he takes the
3 stand.

4 And I'm sorry if I got a little frustrated
5 there because I felt like I'm in a land I didn't
6 understand. Because I understand what we briefed and
7 what we fought and we argued and I got it. But it was
8 never about these things. And so now they're saying,
9 oh, included that too, gotcha. And that's not how I
10 litigate. I don't think --

11 **THE COURT:** Did he offer scientific opinions
12 in the San Francisco case?

13 **MR. WISNER:** Absolutely.

14 **THE COURT:** And Judge Bolanos didn't -- there
15 was no objection to that? I mean, I guess I'm having a
16 problem with -- this morning I realize, well, there
17 seems to be a fundamental disagreement about the *Sargon*
18 motion altogether, which I didn't think there was at the
19 time I ruled on it. And I wish I had known that. We
20 would have had this conversation yesterday. Or at least
21 I would have been alerted to it. Because my
22 understanding and my expectation is that he's going to
23 testify about a fairly narrow area in which he's going
24 to talk about the registration and the --

25 **MR. WISNER:** Sure.

1 **THE COURT:** And so I had no sense that he was
2 going to be testifying about any science. But --

3 **MR. WISNER:** Probably part of the confusion,
4 Your Honor, is -- it's all context-dependent. Right?
5 So he's not going to go up there and say: I looked at
6 the pathology slide from the mouse tumor in 1983 and
7 concluded there was no tumor. That's not his -- he's
8 not a pathologist, he's not going to say that. Right?

9 It's -- he's a science and a science
10 opinion -- he's going to say, though, that when you add
11 that tumor to the control group, it no longer makes it
12 significant. We've already heard that. That's not a
13 new opinion really. It's not even controversial.

14 And then we're going to talk about the
15 significance of it being a class C oncogen on the
16 ability of Roundup to be used in farm product at the
17 time in 1983. Because he's going to talk about the
18 Delaney Clause and how it affects food tolerances.

19 All of that is clearly in his report. I mean,
20 and it's all -- he wrote the statute essentially. I
21 mean, he's an expert in this area.

22 So when you say is there science opinion,
23 there's some factual predicates to the science, but he's
24 not going to be interpreting raw data or anything like
25 that. And he's not going to be offered for that.

1 **THE COURT:** All right. Well, we're going to
2 have to -- I'm going to have to fly blind a little bit
3 here. But I'll just entertain objections as we go along
4 and we'll just see whether or not it's admissible and
5 we'll go from there.

6 **MR. BROWN:** Yeah, and Your Honor, as we move
7 forward in terms of what we're doing, I am hoping that
8 we're going to do it within the confines of the order --
9 within the confines of the order the Court has made post
10 *Sargon* because that does structure this. And, again, I
11 don't see how anyone could read it to include the things
12 that counsel is talking about.

13 And, secondly, let me say that he has
14 indicated that what things about the mouse study he says
15 are already in and in front of the jury, he's absolutely
16 correct --

17 **THE COURT:** Well, let me just stop you there.
18 Let me hear it because if he's talking about what it
19 meant in terms of -- if it's this versus that, and this
20 is what it meant in the regulatory framework, it may
21 very well be relevant. They've already heard it.
22 They've heard a lot of things in different ways from
23 different scientists. So that's really not of any
24 particular concern.

25 If it's not relevant to his framework, his

1 regulatory framework, and I'll just be looking at it
2 through that lens. When you say post order, what are
3 you talking about specifically?

4 **MR. BROWN:** Well, I'm talking about the days
5 after the Court issued its *Sargon* ruling.

6 And what I'm saying is we've got to be going
7 pursuant to what the Court has included in the order.

8 **THE COURT:** Yeah, and I'm saying I'm looking
9 at the -- I will be hearing the testimony sort of
10 through that lens. But I would also say to you that if
11 there is -- if in the context of that, the status of the
12 science makes a difference, then that may very well be
13 relevant and not objectionable.

14 And so if we're talking about -- if we're
15 talking about the science in that context, that may be
16 relevant. If we're talking about pure science, I can't
17 imagine you want them to hear it a 19th time, but that's
18 up to you. You can bore your jury to death if you want
19 to. But you understand what I'm saying.

20 **MR. WISNER:** Absolutely.

21 **THE COURT:** It's 9:40. And it's time for the
22 jury to come in. And we will take it from here.

23 **MR. WISNER:** Your Honor, here's the binder.
24 I'll give it to you now.

25 **MR. BROWN:** Do you want to keep that? You're

1 welcome to it.

2 **THE COURT:** You know what, no. Do you need it
3 to listen, to follow along? I'll hold on to it for a
4 minute. It might be helpful as I listen to his
5 testimony.

6 (Recess taken at 9:43 a.m.)

7 (Proceedings resumed at 9:44 a.m.)

8 (The following proceedings were heard in the
9 presence of the jury:)

10 **THE COURT:** Good morning, ladies and
11 gentlemen.

12 We are going to proceed now with plaintiffs'
13 next witness.

14 Mr. Wisner will introduce him.

15 **MR. WISNER:** Thank you, Your Honor.

16 At this time the plaintiffs call Dr. Charles
17 Benbrook.

18 **THE CLERK:** If you would, please.

19 **THE COURT:** Would you like to stand to be
20 sworn first.

21 **THE WITNESS:** Sure.

22 **THE COURT:** Thank you.

23 **THE CLERK:** Please raise your right hand.

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CHARLES BENBROOK,

called as a witness for the plaintiffs, having been duly sworn, testified as follows:

THE WITNESS: I do.

THE CLERK: Thank you. Please be seated.

And would you please state and spell your name for the record.

THE WITNESS: Charles Benbrook.

C-H-A-R-L-E-S, B-E-N-B-R-O-O-K.

MR. WISNER: May I proceed, Your Honor?

THE COURT: Yes, you may.

DIRECT EXAMINATION

BY MR. WISNER:

Q. Dr. Benbrook, could you please introduce yourself to the jury. Tell them where you're from and where you currently live.

A. Hi. I am -- I'm -- I live in Troy, Oregon, which is in the northeast corner of the state. I've lived and worked there for 16 years. I've spent a number of years working in the area of pesticide use and risk and regulation, mostly through my small consulting business.

Q. All right. Sir, I want to talk to you a lot about your background for a minute. Let's start off from the beginning.

1 Where did you go to college?

2 **A.** I went for undergrad, my undergrad education
3 was at Harvard. And my graduate degrees were from the
4 University of Wisconsin Madison.

5 **Q.** And what did you study at Harvard?

6 **A.** Economics.

7 **Q.** And what did you study at the University of
8 Wisconsin?

9 **A.** Agricultural economics.

10 **Q.** What is agricultural economics?

11 **A.** It's a field of study that tracks the economic
12 consequences of decisions farmers make. It strives to
13 understand the impacts of policy and institutions and
14 new technology on agriculture production in the food
15 system and the cost of food.

16 Agricultural economists are often among the
17 people that get heavily involved in the study of various
18 policy issues, including things like pesticide
19 regulation.

20 So that was sort of what got me into the
21 overall policy arena, impacting decisions made by
22 farmers and how government actions shape the way farmers
23 farm and control pests, for example.

24 **Q.** All right, Dr. Benbrook. Two things. I'm
25 bringing you a bottle of water. Okay?

1 **A.** Thank you.

2 **Q.** And the second one is I'd like you to slow
3 down.

4 **A.** Okay.

5 **Q.** Okay. Great. So let's go through your
6 background.

7 If you look in your binder, Exhibit 3091. Is
8 that a fair and accurate copy of your CV?

9 **A.** Wow, there's a lot of tabs here.

10 **Q.** Sorry.

11 **A.** 39?

12 **Q.** 3091.

13 **A.** Okay. It's kind of near the end. There it
14 is.

15 Yes, it is.

16 **Q.** Okay.

17 **MR. WISNER:** Your Honor, permission to
18 publish.

19 **THE COURT:** Any objection?

20 **MR. BROWN:** No, Your Honor.

21 **THE COURT:** Granted.

22 (Exhibit published.)

23 **BY MR. WISNER:**

24 **Q.** All right. So we're looking here at a copy of
25 your CV. And we talked about that a second ago. I just

1 kind of want to go through the first part here.

2 We have here obviously your personal
3 information. Do you see that?

4 A. Yes, sir.

5 Q. And you talk about your education. You said
6 you have a Ph.D. in agricultural economics. That's what
7 we were talking about a second ago.

8 A. Yes, sir.

9 Q. All right. Quickly, hobbies: Raising
10 rabbits, what is that?

11 A. I raise rabbits. Some people raise dogs, some
12 people raise pigeons. I raise rabbits. And we take
13 them to shows just like a national dog show, and they're
14 judged on a standard of excellence. And, yeah, it's my
15 hobby.

16 Q. So you go to shows and, like, show rabbits
17 like dogs?

18 A. Well, you don't lead them around on a leash.
19 They're put up on a table, and the judge feels their fur
20 and checks out their body conformation. You know, some
21 of us would be a little heavy, some might be a little
22 long.

23 But, yeah, so it's a wonderful hobby. It gets
24 you away from the computer and out of the house.

25 Q. All right. So let's talk about your

1 employment history. And start off from when you got
2 your graduate degree.

3 So the first thing -- I'm sorry. So it looks
4 like from 1979 to 1981, was that during the time you
5 were getting your Ph.D.?

6 **A.** Finishing it, yes.

7 **Q.** You were at the Council on Environmental
8 Quality, at the Executive Office of the President. What
9 is that?

10 **A.** It's a very small policy shop within the
11 Executive Office of the President. At that time Jimmy
12 Carter was President. And it advised the White House
13 and the executive branch on environmental issues in all
14 areas of the economy.

15 And I was hired as an agricultural expert and
16 worked on a number of projects that CEQ, that's the
17 acronym for the Council on Environmental Quality, had
18 undertaken during the Carter administration and wanted
19 to get done before the inaugural bringing in the next
20 president.

21 **Q.** And then you have you left there and worked at
22 the subcommittee on department operations research and
23 farm agricultural -- Committee on Agriculture, U.S.
24 House of Representatives.

25 **A.** Correct.

1 **Q.** What was that?

2 **A.** So I was very fortunate because I was able to
3 move from working on a cluster of agriculture
4 environment, public health issues in the -- for the
5 administration to a professional staff job in the
6 Congress, of which there were relatively few. And with
7 the presidency going from Democrats to Republicans,
8 there were a lot of people out of work.

9 **MR. BROWN:** I'm going to object. That's
10 irrelevant. I'm going to ask to move to strike and
11 subject to the Court's prior ruling.

12 **THE COURT:** Yeah, let's move past the
13 politics.

14 **MR. WISNER:** Oh, sure.

15 **Q.** Let's not talk about the politics.

16 **A.** Okay, I'm sorry.

17 **Q.** What did you do there?

18 **A.** I was the staff director of the congressional
19 subcommittee that had jurisdiction or responsibility for
20 the national pesticide regulatory law called FIFRA.

21 **Q.** And what is FIFRA, sir?

22 **A.** It is the Federal Insecticide, Fungicide and
23 Rodenticide Act. And it establishes the criteria upon
24 which the EPA is supposed to make decisions about
25 whether a pesticide can be used and how it can be used

1 and under what conditions. And so the statute addresses
2 all aspects of the regulatory process.

3 Q. And as part of your work at this committee,
4 did you have to investigate the implications of EPA
5 regulations on pesticide use?

6 A. Yes.

7 Q. And how did you go about doing that?

8 A. You hold hearings. And we had, in the three
9 years that I was the staff director of the subcommittee,
10 we had a very extensive set of hearings on pesticide
11 issues because there was a lot of demand for changing
12 national policy at the time.

13 We probably held over two dozen hearings in
14 the three years. At essentially every hearing, a
15 representative of the EPA would be invited and would
16 explain what they're doing, how they're implementing the
17 law, and whether they -- they thought there were aspects
18 of the law that needed to be clarified or changed.

19 Q. Did you, in that capacity, also interface with
20 scientists?

21 A. Oh, for sure. At every hearing that we
22 scheduled, it was sort of my job as the staff director
23 to identify and invite outside scientists that had
24 expertise in the particular issues.

25 For example, we held a hearing on

1 cancer-causing pesticides and how EPA was conducting its
2 risk assessments and evaluating the risk. And for that
3 hearing, we invited a scientist from the National Cancer
4 Institute, for example.

5 Q. Was that scientist Dr. Aaron Blair?

6 A. Yes, it happened to be Dr. Aaron Blair.
7 That's when I first met him.

8 Q. All right. So then moving on to that, you
9 began work for, it looks about six years at the National
10 Research Council, National Academy of Sciences.

11 What is the National Academy of Sciences?

12 A. The National Academy of Sciences is an
13 independent advisory body set up actually by President
14 Lincoln to provide scientific and technical advice to
15 the federal government. It's not part of the
16 government, but it's set up to provide independent
17 scientific and technical assistance to different federal
18 agencies.

19 I was recruited actually from my staff
20 director position on -- in the U.S. Congress where we
21 were doing, in effect, studies on various agricultural
22 issues including pesticides. I was recruited to come
23 and build a new program in the National Academy of
24 Sciences on agriculture.

25 So I became the executive director of what was

1 called the board on agriculture. And we designed and
2 carried out, in my seven years there, oh, maybe
3 50 projects of which, you know, a quarter of them either
4 were directly about pesticides, pesticide risk, and pest
5 management, or in which pesticides and pest management
6 was an important part of the project.

7 Q. And when you were working at the National
8 Academy of Sciences and specifically on these pesticide
9 projects, were you reviewing, considering, and
10 discussing or writing reports about, like, scientific
11 articles and publications?

12 A. Oh, yes. That was part of the job.

13 Q. And as part of that job, how were you able to
14 keep up with the scientific aspects of it?

15 A. Well, one of the terrific things about the
16 National Academy of Sciences is it's considered in the
17 scientific community a great honor to be invited to
18 serve on a committee. All of our projects were done by
19 committees of independent scientists, most of them
20 academics working at different universities.

21 We would have between 10 and 15 members. And
22 so these people would come to Washington two or three
23 times a year for two or three days in producing their
24 report. And so I got to spend days with the top
25 scientists in every area that we were conducting a

1 project on.

2 I was young, it was an early part of my
3 career, and I was just a sponge for knowledge. And it
4 was a terrific place to work to learn about, you know,
5 what was going on in the area.

6 Q. Following your time with the National Academy
7 of Sciences, we have on your résumé here, it looks like
8 you worked for about 10 years -- I'm sorry -- for about
9 six years with the Organic Center, chief scientist. Do
10 you see that?

11 A. So when I left the National Academy of
12 Sciences towards the end of 1990, I started my own
13 little one-person consulting firm, Benbrook Consulting
14 Services. And really I continued working on the same
15 cluster of issues that we had worked on during my years
16 in the National Academy of Sciences when I was the
17 executive director of the board on agriculture.

18 And actually the biggest issue that I worked
19 on in that next decade from 1991 through 2000 was the
20 Delaney Clause and the impact of federal law on the
21 regulation of cancer-causing pesticides. Over half of
22 my contracts involved that in one way or another.

23 Q. After that it looks like for about three or
24 four years you were on the faculty of Washington State
25 University; is that right?

1 **A.** Correct.

2 **Q.** And what did you teach there?

3 **A.** I didn't have a teaching appointment. I had a
4 research appointment. And I was -- my mission there was
5 to develop new analytical systems to quantify the impact
6 of agricultural production systems and technology on the
7 environment, on human health, on wildlife, et cetera.

8 **Q.** And during this time that you've been a
9 consultant for Benbrook Consulting Services, have you
10 participated in any sort of hard scientific projects?

11 **A.** Well, yes. I've been -- either through my own
12 individual research or as part of a broader team, I've
13 published, you know, over 30 peer-reviewed papers in a
14 wide range of journals that have reported original
15 analytical work on, again, trying to evaluate how
16 agricultural production systems, pest management
17 systems, different pesticides, different policies impact
18 things that, you know, we all care about: The safety of
19 food, rates of cancer, birth defects, and the
20 cleanliness of water, and the productivity of our
21 agricultural systems.

22 **Q.** Can you tell the jury about any current
23 projects you're working on, scientific projects that
24 relate to glyphosate?

25 **A.** Well, I've just published a new paper with two

1 colleagues from King's College in London on the
2 surfactants that are mixed in with glyphosate to produce
3 Roundup and other, I'll use the term glyphosate-based
4 herbicides, or I'll say GBHs. So that refers to a
5 herbicide often made by a company other than Monsanto
6 that contains glyphosate.

7 For the first, you know, 30 years of my
8 professional career, Monsanto was the sole manufacturer
9 and completely responsible for everything to do with
10 Roundup.

11 **MR. BROWN:** Excuse me, Your Honor. I'm going
12 to object. There's no foundation. This is all
13 speculation and argumentative. And it's also
14 nonresponsive to the question.

15 **THE COURT:** I'm going to so strike "for the
16 first 30 years." And why don't we go on.

17 **BY MR. WISNER:**

18 **Q.** Sir, have you looked at who manufactured and
19 sold Roundup in the United States for the first 30 years
20 of your career?

21 **A.** Yes.

22 **Q.** Who manufactured and sold Roundup for the
23 first 30 years of your career?

24 **A.** Monsanto.

25 **Q.** Okay. Now I want to go through some of these

1 publications that you mentioned. Here we go.

2 So that publication you just mentioned, is
3 that the one right here that just came out?

4 **A.** Yes, sir.

5 **Q.** And was that a publication that specifically
6 looked at the toxicity of surfactants?

7 **A.** Yes. It tried -- it tries to report to the
8 broader scientific community several factors why there's
9 a lot of confusion among scientists about the
10 toxicological properties of glyphosate-based herbicides
11 and Roundup. Because scientists outside of the
12 industry, scientists that don't work for one of the
13 companies, don't have access to the confidential
14 statements of formula --

15 **MR. BROWN:** Excuse me, Your Honor. I'm going
16 to object. It's nonresponsive to the question. It
17 exceeds the scope of this witness's purported expertise.
18 And it lacks foundation.

19 **MR. WISNER:** He literally published an article
20 about it.

21 **THE COURT:** Hold on just one second.

22 (Pause in the proceedings.)

23 **THE COURT:** I'm going to strike "because
24 scientists outside of the industry," from that point
25 forward is stricken.

1 **MR. WISNER:** Okay.

2 **Q.** So in this article -- we're going to get to
3 your article later. I just wanted to know generally
4 what it was about. That's fine.

5 Let's move on to some other articles in here.
6 I don't want to know what they're about, just very
7 general statements about what they're about; okay?

8 **A.** Okay.

9 **Q.** So we have here an article, "How the U.S. EPA
10 and IARC reached diametrically opposed conclusions on
11 genotoxicity of glyphosate-based herbicides."

12 Do you see that?

13 **A.** Yes.

14 **Q.** Was that also published in a peer-review
15 journal?

16 **A.** Yes.

17 **Q.** And it looks like we have discussions about --
18 the next one about the track and control of pesticide
19 risks. Do you see that?

20 **A.** Yes.

21 **Q.** And then there's -- I mean, Doctor, I see a
22 lot of articles here about pesticides. I guess my
23 question is to you: How many times have you published
24 in peer-reviewed scientific journals about pesticides?

25 **A.** Maybe 20 papers, something like that.

1 **Q.** And were some of those papers looking at the
2 toxicological profile of pesticides?

3 **A.** Oh, most of them. And also the use, how many
4 pounds were applied. And I've also published a number
5 of papers that get at the impact of policy on pest
6 management systems, which indirectly then impacts
7 pesticide use.

8 **Q.** Now, this is something that I think -- I got
9 to clear up.

10 So you're talking about how policy and science
11 sort of relate; is that right?

12 **A.** Yes.

13 **Q.** To be able to talk about that relationship, do
14 you have to be able to understand the science?

15 **A.** Well, it certainly helps.

16 **Q.** What happens if you don't understand the
17 science and start talking about how it applies in
18 policy?

19 **A.** Well, for one thing, you can make a fool of
20 yourself pretty quickly because, you know, the science
21 is absolutely integral to, for example, the regulatory
22 process. The regulatory process, it's really managing
23 of the evolution of scientific knowledge that relates to
24 pesticide impacts and pesticide risk.

25 **Q.** All right. Doctor, so I want to talk about

1 Roundup and glyphosate. Okay? And I want to start from
2 the beginning.

3 Let's start -- I kind of want to go back in
4 time here and start at the beginning of the story of
5 glyphosate in Roundup. Okay.

6 So my first question is: When was -- when was
7 glyphosate first discovered?

8 **A.** In 1950 by a small Swiss pharmaceutical
9 company, I believe it was Cilag, C-I-L-A-G. They were
10 looking for a new drug and were unable to identify any
11 medicinal applications of it. And so it -- they really
12 didn't do anything with it.

13 **Q.** That was in the 1950s; right?

14 **A.** 1950, correct.

15 **Q.** Then what happened next?

16 **A.** The Cilag sold a number of --

17 **MR. BROWN:** Excuse me, Your Honor. I'm going
18 to object. It's all hearsay. And there's no
19 foundation.

20 **THE COURT:** Overruled. He can answer.

21 **THE WITNESS:** Cilag sold a number of molecules
22 to a company called Aldrich which was another chemical
23 company. And they tried to develop and find uses for
24 various molecules. But they also did not recognize any
25 valuable commercial use for glyphosate.

1 So it was sort of -- it was on the shelf by
2 this Aldrich company, but it was not being actively
3 developed and nor had its remarkable properties as a
4 herbicide been recognized yet.

5 **BY MR. WISNER:**

6 **Q.** Well, what happened next? Was it ever used --
7 did it have any use before being recognized as an
8 herbicide?

9 **A.** No. No commercial uses to my knowledge.

10 **Q.** Okay. Was it patented in 1961 for use in
11 cleaning industrial boilers?

12 **THE COURT:** So, counsel, I do want you to lay
13 a foundation.

14 **MR. WISNER:** Sure.

15 **Q.** Are you familiar with whether or not
16 glyphosate has ever been used as a descaling agent?

17 **A.** It's been -- it has been explored for that
18 use, and I think it did have some uses and there was a
19 patent around 1960 for that particular use.

20 **Q.** Okay. So the 1960s, patented as descaler; is
21 that right?

22 **A.** Yeah, that would be a correct term to describe
23 it, descaling agent.

24 **Q.** So when did it become an herbicide?

25 **A.** So Aldrich sold a suite of molecules, I think

1 there were over 100, to Monsanto. And at the time --

2 **MR. BROWN:** Excuse me, Your Honor. The answer
3 is nonresponsive.

4 **MR. WISNER:** Actually it is.

5 **THE COURT:** Why don't you just approach for a
6 second.

7 (Sidebar held but not reported.)

8 **MR. WISNER:** May I proceed, Your Honor?

9 **THE COURT:** You may proceed.

10 **BY MR. WISNER:**

11 **Q.** Sir, have you researched the history and
12 origins of glyphosate in the U.S.?

13 **A.** Yes.

14 **Q.** Have you researched the patents at issue?

15 **A.** Many of them.

16 **Q.** Okay. So you were describing to the jury a
17 second ago how it went from being patented as a
18 descaling agent to an herbicide. Can you please finish
19 your answer.

20 **A.** So what --

21 **MR. BROWN:** Your Honor, I hate to object. But
22 there's no foundation. And it calls for hearsay.

23 **THE COURT:** I'm going to overrule and let him
24 answer the question.

25 Go ahead.

1 **THE WITNESS:** So Monsanto purchased a set of
2 molecules. They were actually also looking for
3 descaling agents. It was an active area of their
4 research. And a scientist that worked for Monsanto at
5 the time named Dr. Franz decided to take it into the
6 greenhouse and see if it had any activity on weeds,
7 which was a common thing for a scientist working in the
8 industry at the time to just see if by any chance it had
9 herbicidal activity.

10 And, lo and behold, Dr. Franz discovered the
11 potent effectiveness of the glyphosate molecule to kill
12 plants.

13 **BY MR. WISNER:**

14 **Q.** And when was that?

15 **A.** 1970.

16 **Q.** Okay. All right. I wrote glyphosate becomes
17 herbicide. Maybe I should say --

18 **A.** Recognized as a herbicide.

19 **Q.** Yeah, I realize.

20 All right. Following 1970, what's regulatory
21 steps -- well, back up.

22 Have you investigated the early regulatory
23 history of glyphosate and its registration with the EPA?

24 **A.** Yes, I have.

25 **Q.** All right. Before we get to that, when did

1 the EPA actually come into existence?

2 A. In 1970.

3 Q. When in 1970?

4 A. I don't remember the month.

5 Q. Okay. So in the same year that glyphosate was
6 recognized as an herbicide, the EPA was actually
7 created?

8 A. Correct.

9 Q. All right.

10 And at what point did the EPA have an
11 authority to specifically regulate pesticides?

12 A. Well, certainly by 1971 they were in control
13 of the pesticide regulatory process, which actually had
14 just been moved en masse from the USDA into the newly
15 formed EPA.

16 Q. Okay. So between 1970 and 1970 -- well, when
17 was Roundup -- glyphosate approved?

18 A. The first regulatory actions approved
19 experimental uses of glyphosate-based herbicide -- it
20 hadn't been named Roundup yet -- I think cotton was one
21 of the first and soybeans was one of the first. These
22 are very limited applications involving only usually a
23 few acres of crop that are done to, first of all, see if
24 it works on the field scale, but to also help the
25 company understand how to formulate it, what the

1 application rate ought to be, how it needs to be
2 applied.

3 So an experimental use permit, or EUP, is
4 always the first action, followed very soon thereafter,
5 and I believe the first tolerance petitions from
6 Monsanto to EPA to sanction residues of glyphosate in
7 the crops that it's been sprayed on, were submitted to
8 the agency in late 1971 or '72.

9 Q. Okay. So in 1971-72, it had this experimental
10 application?

11 A. Right.

12 Q. What I'm interested in is when did it become
13 Roundup as we know it today? Or get approved as Roundup
14 as we know it today?

15 A. Well, the first commercial sales of Roundup
16 were in 1974.

17 Q. Okay. So by 1974 Roundup is approved; is that
18 right?

19 A. Yeah, named and approved. Yep.

20 Q. Okay. And when you say Roundup, that includes
21 both glyphosate, the molecule we've been talking about,
22 as well as the other ingredients?

23 A. The other surfactants, yes, correct.

24 Q. All right. So between 1970-1974 so between
25 the discovery of glyphosate as an herbicide and Roundup

1 being approved, were there any scientific studies done
2 on glyphosate to get approval?

3 A. Oh, yes, definitely.

4 Q. And what are some of the studies that are
5 required before an herbicide like Roundup can be
6 approved?

7 A. So in order for when Monsanto submitted to the
8 EPA what's called a tolerance petition, it's a request
9 to the EPA to establish a legal limit of glyphosate in
10 soybeans or glyphosate in corn, they had a set of
11 toxicological data requirements that they had to
12 fulfill.

13 Two long-term animal studies, which you've
14 heard a lot about, the mouse studies and the rat
15 studies. There would be studies on teratogenicity which
16 would look at birth defects, there would be mutagenicity
17 studies. There would be a large number of metabolism
18 studies in different animals to try to understand when a
19 person is exposed to glyphosate, how it moves through
20 their body.

21 And there's also a large number of studies in
22 plant metabolism to help EPA figure out where to set
23 that tolerance. You know, could there be one part per
24 million in the soybean when it's harvested or five parts
25 per million.

1 So between 1970 and 1974, there were probably
2 a few hundred studies submitted by Monsanto to the newly
3 formed EPA to set the regulatory foundation for the
4 commercial uses of Roundup that started in 1974.

5 **Q.** Now, you've mentioned this concept of
6 tolerances a couple of times. Can you just explain to
7 the jury what that is.

8 **A.** So for all uses of a pesticide on a food crop,
9 apples, oranges, spinach, soybeans, corn, there has to
10 be established, before the EPA will approve a label
11 making it legal to say spray Roundup on a soybean field,
12 there has to be a tolerance covering the residues of
13 glyphosate that are going to remain on the soybean after
14 the farmer harvests the crop.

15 And those tolerances are set at a level
16 sufficient to cover the residues measured in soybeans
17 based on the way the label allows the pesticide to be
18 used.

19 So they're a -- they're both a way to control
20 the dietary risks from pesticides in food, and they're a
21 way to enforce compliance with the label directions.
22 Because the body of data that Monsanto developed and
23 submitted to the EPA showed the maximum amount of
24 glyphosate that would remain on soybeans if the product
25 was legally applied.

1 So if there was ever higher residues, that
2 would be evidence that an illegal application had been
3 made.

4 **Q.** Okay. So going between 1970-1974 where these
5 studies are being done to support the registration for
6 Roundup, did the EPA itself conduct any of those
7 studies?

8 **A.** No.

9 **Q.** Well, who does conduct the studies?

10 **A.** The registrants either conduct them in their
11 own in-house laboratories by scientists that work for
12 them. Or more typically they would contract with
13 outside commercial testing laboratories that are set up
14 to meet the needs of the drug industry, the pesticide
15 industry, the oil and gas industry for testing of
16 chemicals.

17 **Q.** Between 1970-1974, were there long-term animal
18 cancer studies done with glyphosate?

19 **A.** Yes.

20 **Q.** Who conducted those studies?

21 **A.** A contract lab in Northbrook, Illinois called
22 Industrial Bio-Test Laboratories, IBT.

23 **Q.** Are you familiar with the events surrounding
24 the IBT laboratory?

25 **A.** Oh, yes.

1 **Q.** Why are you so familiar with them?

2 **A.** So, remember, from in 1981, '82, '83, I was
3 the staff director of this congressional subcommittee
4 that had jurisdiction and responsibility to track what's
5 going on with pesticides.

6 Right at that time, the events involving this
7 IBT Lab producing fraudulent data in support of the
8 registration of a bunch of pesticides broke into, you
9 know, public view. And the EPA was in a terrible
10 position. The companies were in a bad position. The
11 public was frustrated that there was no valid data
12 supporting the use of a couple hundred pesticides.

13 It was probably the largest sort of scandal,
14 if you will, in the history of pesticide regulation in
15 the U.S.

16 **Q.** And I want to talk about the IBT story a
17 little bit. I understand a report was prepared by the
18 EPA in 1983.

19 **A.** Yes.

20 **Q.** Are you familiar with that report?

21 **A.** It was done at our request and submitted to
22 the subcommittee.

23 **Q.** Okay. If you look into your binder, is
24 Exhibit 1364 a fair and accurate copy of that report?
25 1364.

1 **A.** That's the one.

2 **MR. WISNER:** Permission to publish,
3 Your Honor.

4 It's 1364.

5 **MR. BROWN:** Objection, Your Honor. Exceeds
6 the scope. And also not relevant in terms of the order
7 that the Court has previously made.

8 **THE COURT:** Overruled. You can publish.

9 (Exhibit published.)

10 **BY MR. WISNER:**

11 **Q.** All right. Doctor, looking here at this
12 report, and I'll call out the front, this is the Summary
13 of the IBT Review Program, Office of Pesticide Programs,
14 July 1983. Do you see that?

15 **A.** Correct.

16 **Q.** And what was going on in 1983 with regards to
17 this IBT review program?

18 **A.** Oh, there was a major federal trial in
19 Chicago --

20 **Q.** Oh, please don't talk about that.

21 **A.** Oh.

22 **Q.** I just want to talk about what this report is
23 about.

24 **A.** Okay. This report identifies all of the
25 toxicology studies supporting currently registered,

1 currently used pesticides that rested upon IBT studies
2 and then identified which of those IBT studies had been
3 deemed to be fraudulent or invalid.

4 Q. Okay. So if we go into this report, and we go
5 specifically to page 19 of the report.

6 Well, actually, let's start off with the
7 intro. It's bottom right page 12; do you see that?

8 A. Page 12?

9 Q. Yeah.

10 A. Yes, I'm there.

11 Q. First paragraph talks about, Exhibit A,
12 quantitatively presents the database of the chemical
13 compounds for which studies were conducted by Industrial
14 Bio-Test Laboratories. The IBT studies are designated
15 by the letter O, studies in the EPA database done by
16 labs other than IBT are designated by the letter X.

17 Do you see that?

18 A. Yes.

19 Q. Okay. And if you turn to page 19, we have the
20 data here specifically for glyphosate. Do you see that?

21 A. I do.

22 Q. All right. Well, I'll just keep it so
23 everyone can see it.

24 And under here we have this category
25 "Oncogenicity." Do you see that?

1 **A.** Yes.

2 **Q.** What is oncogenicity?

3 **A.** It's the study of the capacity of a chemical
4 to cause cancer.

5 **Q.** Okay. And if we go down to glyphosate, right
6 here, we have one zero. Do you see that?

7 **A.** Yes.

8 **Q.** What does that one zero mean?

9 **A.** That is one IBT study had been submitted that
10 had been done at IBT on glyphosate.

11 **Q.** And it was specifically about whether or not
12 it causes cancer?

13 **A.** Correct.

14 **Q.** All right. If we look over, there's another
15 that says mutagenicity. Do you see that?

16 **A.** Yes.

17 **Q.** And if we go down to mutagenicity, it looks
18 like there's one X and four O's?

19 **A.** Correct.

20 **Q.** What does that mean?

21 **A.** That means that at that point, the EPA had
22 received from Monsanto five mutagenicity studies, four
23 of which came from IBT and one of which came from a
24 different lab.

25 **Q.** All right. And if you look at the far right,

1 it has this phrase "data call-in." Do you see that?

2 A. Yes.

3 Q. What does "data call-in" mean?

4 A. "Data call-in" is the term of art in the EPA
5 regulatory program where it requires a company to submit
6 a new study. It may be a new study to support a new
7 type of pesticide or a new application of a pesticide.

8 But in this case, it's a data call-in to
9 replace studies that had been deemed to be invalid.

10 Q. All right. If we go to Exhibit B, which is
11 the next portion of this report, we're on page 30 if you
12 want to follow by paper, there's a section here defining
13 some terms. Do you see that?

14 A. Yeah.

15 Q. And it says, "Review designed to determine if
16 the information in the final report was supported by the
17 raw data from the study." Do you see that?

18 A. Yes.

19 Q. What is that referring to?

20 A. These are the criteria or the classifications
21 in which EPA placed the different studies that had been
22 submitted to it from the IBT lab. It was sort of their
23 effort to determine which ones were invalid, which ones
24 were poor quality but acceptable, and which ones were
25 fine.

1 **Q.** Now it says right here "was supported by the
2 raw data." Is it your understanding that the EPA
3 collected the raw data from the study?

4 **A.** They visited the lab and asked to see the
5 records, yes.

6 **Q.** And then they compared those records to what
7 the results were?

8 **A.** The results as reported in the physical report
9 that had been submitted to the agency by Monsanto.
10 Monsanto having received it from IBT.

11 **Q.** Okay. In the first category here, it says,
12 "Invalid. The information in the final report was not
13 supported by the raw data from the study."

14 What does that mean?

15 **A.** It's sort of self-explanatory. The EPA went
16 in and investigated the raw data as stored in the files
17 at the laboratory, and it didn't support the data that
18 appeared in the report. So they would have no basis to
19 know what the study showed or even if there was a study.

20 **Q.** In the original IBT cancer study that was
21 submitted in support of registration, did that study
22 report no oncogenic effect?

23 **A.** That's what it reported, yes.

24 **Q.** So let's go and see what they said about
25 glyphosate. This is on page 37. And as you can see

1 right here, there is a bunch of studies involving
2 glyphosate by IBT. Do you see that?

3 A. Yes.

4 Q. All right. And now if we go to the one that
5 says carcinogenicity.

6 A. Yes, I see it.

7 Q. You see it? I'll highlight it for the jury.
8 Do you see that?

9 A. Yes.

10 Q. All right. What letter did the EPA give it?

11 A. "I."

12 Q. What does that mean?

13 A. Invalid.

14 Q. So the EPA reviewed the raw data and concluded
15 this study, the only study that supported glyphosate,
16 was actually invalid?

17 A. The only two-year cancer study supporting
18 glyphosate, yes.

19 Q. All right. And if we go into here, there's
20 also discussions about mutagenicity. Do you see that?

21 A. Yes.

22 Q. So, for example, we have this mutagenicity
23 mouse study. Do you see that?

24 A. Yes.

25 Q. And, again, what letter did the EPA give it?

1 **A.** "I" for invalid.

2 **Q.** All right. Let's find the rest of them.

3 Here's another one, mutagenicity mouse. Do
4 you see that?

5 **A.** Yes. There should be two more.

6 **Q.** Okay. So it looks like -- then there's Ames.
7 Here we go?

8 **A.** The Ames study is a mutagenicity study.

9 **Q.** So of those four IBT studies that we saw in
10 the earlier of the document, how many of them were
11 deemed invalid, meaning not supported by the raw data?

12 **A.** All of them.

13 **Q.** Okay. Do you know when the IBT scandal first
14 broke, when people first learned about it?

15 **A.** In 1976.

16 **Q.** Okay. If you go to the beginning of this
17 document -- well, not the beginning. Sorry.

18 On page 9 it says right here:

19 1976, during a routine lab inspection
20 of one of IBT's facilities, FDA discovered
21 deficiencies in the manner in which
22 studies were being conducted and
23 discrepancies between those studies and
24 their raw data.

25 **A.** Yes.

1 Q. Have you investigated actually what was
2 discovered in 1976?

3 A. Oh, yes.

4 Q. And you read the reports at the time?

5 A. I actually spoke to the scientist that did the
6 inspection.

7 Q. And what did you learn about what was
8 happening at the IBT Laboratories during this time?

9 A. It was a mess.

10 Q. Please describe.

11 A. They had grown very fast. They were founded
12 in the early 1950s, and by the early 1970s they had
13 hundreds of studies underway and were trying to take
14 care of 15- to 20,000 animals and -- you know, rats and
15 mice in the cages.

16 And they had installed what at the time was a
17 modern watering system that would automatically provide
18 water to the rodents in their cages and also help clean
19 out the feces. And it never worked right and it got
20 plugged up. And it sprayed water where it wasn't
21 supposed to go.

22 At one point there was a couple inches of
23 water on the floor of the lab. Some animals were
24 getting no water and died of thirst. Other animals were
25 in water in the bottom of their cages --

1 **MR. BROWN:** Excuse me, Your Honor.

2 **THE WITNESS:** -- and it led to a very high
3 rate of --

4 **MR. BROWN:** Excuse me, Your Honor. I'm going
5 to object. This is hearsay. It lacks foundation.

6 **THE COURT:** I'm going to sustain any objection
7 with respect to IBT's internal issues. The fraudulent
8 data issue is relevant.

9 **MR. WISNER:** Fair enough.

10 **Q.** Putting aside the watering thing and what
11 happened at IBT, I guess my question, the bottom-line
12 question is: Was it concluded, sir, that IBT had
13 engaged in scientific fraud?

14 **A.** Yes.

15 **Q.** And when it was discovered in 1976 and the
16 years following that these studies were fraudulent, did
17 Monsanto remove Roundup from the market?

18 **A.** No.

19 **Q.** Did they ever repeat the mouse study?

20 **A.** Yes.

21 **Q.** Okay. And when did they repeat that mouse
22 study?

23 **A.** It was begun in I believe 1981 at a lab called
24 Biodynamics.

25 **Q.** And when did they finally have the results of

1 that study?

2 A. 1983.

3 Q. So it wasn't until 1983 that Monsanto then had
4 a valid mouse study assessing the carcinogenicity of
5 Roundup -- of glyphosate? Sorry.

6 A. That's correct.

7 Q. All right. So between 1976, and we're up
8 to -- where's my markers? 1970 -- sorry, 1983. So
9 that's approximately how many years?

10 A. Seven.

11 Q. Okay. So for seven years they didn't have any
12 valid data, but was it still being sold the whole time?

13 MR. BROWN: Objection. Argumentative.

14 THE COURT: Overruled. I think he established
15 that already.

16 THE WITNESS: Yes, it was still being sold.

17 BY MR. WISNER:

18 Q. Okay. And I guess my other question, and this
19 is kind of important, between 1976 and 1983, did
20 Monsanto ever warn about their lacking cancer data on
21 their label?

22 A. No.

23 MR. BROWN: Objection. The Court has ruled in
24 terms of it exceeds the scope in terms of the *Sargon*
25 ruling.

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THE COURT: Approach.

(Sidebar held but not reported.)

MR. WISNER: May I proceed, Your Honor?

THE COURT: Yes.

BY MR. WISNER:

Q. Dr. Benbrook, during this time period between 1970 -- sorry -- 1976 when the IBT fraud was discovered and 1983 when they now had a new mouse study, did Monsanto ever disclose on its label that they had no valid cancer data?

A. No.

Q. Now, this new study, what was it called?

A. I remember it as the Biodynamics 1983 mouse study.

Q. Okay. Now the jury has seen this before. This is the tumor charts that Dr. Portier put together. And just for clarity's sake, when you say Biodynamics, are you referring to the Knezevich and Hogan study from 1983?

A. Yes, sir.

Q. Okay. I guess I actually have a follow-up question about this IBT~Labs story. You understand that certain scientists were implicated in this fraud; is that right?

A. Yes.

1 Q. One was by the name of Paul Wright?

2 A. Correct.

3 Q. And the other one was by the name of
4 Dr. Keplinger?

5 A. Correct.

6 Q. Did Dr. Keplinger sign off on this cancer
7 study?

8 A. Yes.

9 Q. So in 1983, we have the -- I'll call it
10 Biodynamics because that's what you like -- study
11 involving mice; is that right?

12 A. Correct, yes.

13 Q. And that was submitted to the EPA in what
14 year, sir?

15 A. I think it was in the fall of 1983.

16 Q. All right. And actually I keep forgetting
17 stuff I want to cover.

18 Before we get to that study, I want to talk
19 about it briefly, but after the IBT scandal was kind of
20 learned about 1976, did the EPA have the authority to
21 just force the withdrawal of these pesticides off the
22 market?

23 A. Actually they did not.

24 Q. So if we look at this document on page 4, it
25 says right here --

1 **A.** That's page 3 -- oh, bottom of 3, okay.

2 **Q.** Yeah, it's confusing. There's like 10 numbers
3 on everything.

4 But it says:

5 The IBT case caused serious concern
6 and uncertainty about the potential
7 hazards of the hundreds of pesticides
8 involved, both for EPA and the public.
9 Although it was advocated by some that all
10 212 pesticides tested in whole or in part
11 by IBT be removed from the market pending
12 retesting, that option was not available
13 under current law.

14 Do you see that?

15 **A.** That's correct.

16 **Q.** Can you please explain to the jury why that
17 option was not available under current law.

18 **A.** The basic FIFRA statute, this is the federal
19 statute that lays out the rules that EPA has to follow
20 to cancel an existing registration of a pesticide,
21 states that the EPA must conclude based on valid
22 evidence that the risks associated with the ongoing use
23 of the pesticide exceed the benefits to the farmers from
24 the use of the pesticide. That's the basic standard
25 embedded in the statute.

1 But lacking a valid study, they had no way to
2 quantify the risks. And so they knew they would be
3 unsuccessful if challenged in court because they had no
4 basis to even say there might be any risk.

5 So because of that, they had no legal
6 mechanism to drive the products off the market.

7 **Q.** Who, other than -- so the EPA didn't have the
8 ability. Who had the ability to take it off the market
9 pending test?

10 **A.** The registrants.

11 **Q.** And that was who?

12 **A.** Monsanto.

13 **Q.** All right. So we're now up to 1983. We have
14 this Biodynamics study. By when did the EPA review this
15 study?

16 **A.** I'm sorry, I didn't hear you, Brent.

17 **Q.** Sorry. By when did the EPA review the study
18 that was submitted to it?

19 **MR. BROWN:** Calls for speculation.

20 **THE WITNESS:** It --

21 **MR. BROWN:** Lacks foundation.

22 **THE COURT:** Overruled.

23 **THE WITNESS:** The EPA review of the
24 Biodynamics study was -- it went through many phases, of
25 course, but in 1984.

1 **BY MR. WISNER:**

2 **Q.** Okay. I want to look at a document that's
3 actually already in evidence.

4 If you turn to your binder, Exhibit 868, is
5 that one of the original memos discussing the EPA's
6 assessment of that study?

7 **A.** Yes, it is.

8 **MR. WISNER:** Permission to publish,
9 Your Honor?

10 **THE COURT:** It's in evidence?

11 **MR. WISNER:** Yes.

12 **THE COURT:** Granted.

13 (Exhibit published.)

14 **BY MR. WISNER:**

15 **Q.** All right. So we're looking at this memo.
16 The jury actually saw this in the context of a
17 deposition. But I want to walk you through some of it
18 just to make sure I understand some of the technical
19 aspects of it. Okay?

20 So it's dated here April 3rd, 1985. Do you
21 see that?

22 **A.** Yes.

23 **Q.** And it's from William Dykstra, Ph.D.,
24 Toxicology Branch. Do you see that?

25 **A.** Yes, sir.

1 **Q.** What was the Toxicology Branch back in 1985?

2 **A.** That was the part of the Office of Pesticide
3 Programs which was the part of the EPA responsible for
4 pesticide regulation. The Office of Pesticide Programs
5 had several branches, and they took on different aspects
6 of the scientific review. The Toxicology Branch
7 evaluated all of the cancer studies, the mutagenicity
8 studies, the birth defect studies on pesticides.

9 **Q.** It says right here under conclusions:

10 Glyphosate was oncogenic in male mice
11 causing renal tubule adenomas, a rare
12 tumor, in a dose-related manner. The
13 study is acceptable as core minium data.

14 Do you see that?

15 **A.** Yes.

16 **Q.** All right. We're going to break down that
17 sentence. It says glyphosate was oncogenic in male
18 mice, causing these tumors. What does that mean?

19 **A.** It means that there was a statistically
20 significant increase in renal tubular adenomas in the
21 male mice that were administered glyphosate in their
22 feed compared to the control group of male mice that did
23 not receive any glyphosate in their feed.

24 **Q.** What does it mean when it says here "core
25 minium data"; what does that mean?

1 **A.** It means that the study was deemed to be valid
2 and that it satisfied one of the data requirements
3 supporting both glyphosate registrations and also the
4 tolerances covering glyphosate residues in food.

5 **Q.** Now if we go into the study a little bit
6 farther to actually look at what the study showed, if we
7 go to on page 2 of this document, it talks about the
8 renal tubular adenomas that occurred in male mice, do
9 you see that?

10 **A.** Yes.

11 **Q.** Briefly explain to the jury what's the
12 significance of this zero, zero, one, three.

13 **A.** So that's the core result of the Biodynamics
14 mouse study in the males as reported to EPA, both in the
15 Monsanto summary of the -- of the Biodynamics study, as
16 well as the Biodynamics study itself, which of course
17 was submitted in full to the EPA.

18 **Q.** All right. So we go to the front page again.
19 It says this information oncogenicity of glyphosate was
20 evaluated by the Toxicology Branch AD ad hoc committee
21 which concluded that this was an oncogenic response.

22 What is a Toxicology Branch ad hoc committee?

23 **A.** It's a team of the scientists working within
24 the Toxicology Branch that span the range of expertise
25 required to evaluate cancer studies. So it would be

1 statisticians, pathologists, toxicologists.

2 Q. Okay. And have you seen a copy of the
3 consensus report mentioned here?

4 A. Yes.

5 Q. Is that Exhibit 875 in your binder?

6 THE COURT: So we're going to take a break
7 this morning for about 10 minutes.

8 MR. WISNER: Sure.

9 THE COURT: Is this a good time?

10 MR. WISNER: Right after this document, it's
11 perfect.

12 THE COURT: Okay.

13 THE WITNESS: Yes, the 875 is the consensus
14 report of this review committee.

15 MR. WISNER: Your Honor, it's in evidence.
16 I'm going to publish.

17 (Exhibit published.)

18 BY MR. WISNER:

19 Q. So we're looking here at Exhibit 875. And we
20 have here a listing of all these different scientists.
21 Do you see that?

22 A. Correct.

23 Q. One of them, of course, is Dr. Dykstra from an
24 earlier memo.

25 A. Yes.

1 **Q.** We have a statistician, Herbert Lacayo. Do
2 you see that?

3 **A.** Yes.

4 **Q.** All right. And then if we go to the final
5 conclusion here, it states:

6 Classification of glyphosate. In
7 accordance with EPA proposed guidelines,
8 the panel has classified glyphosate as a
9 category C oncogen.

10 **A.** Correct.

11 **Q.** What is a category C oncogen?

12 **A.** It is a chemical that is considered to
13 possibly pose cancer risks to animals including humans.

14 **Q.** And is there a significance in a regulatory
15 capacity of a finding as a class C oncogen?

16 **A.** Oh, yes.

17 **MR. WISNER:** Great. Let's take a break,
18 Your Honor. We can talk about that after the break.

19 **THE COURT:** We're going to take 10 minutes
20 because we will be breaking for lunch so we'll take a
21 short break.

22 (Proceedings continued in open court out of
23 the presence of the jury:)

24 **THE COURT:** You can step down, Doctor,
25 10 minutes.

1 **MR. WISNER:** Yes, Your Honor.

2 **THE COURT:** In terms of just timing, how much
3 longer?

4 **MR. WISNER:** I was planning to go till about
5 2:00 o'clock today.

6 **THE COURT:** 2:00?

7 **MR. WISNER:** Yeah, but that was with the
8 understanding that we'd start at 9:00. So we didn't
9 start until almost 10:00. So I'll probably go to 2:30,
10 2:40.

11 **THE COURT:** Okay. So then will he be done
12 today?

13 **MR. BROWN:** Yes.

14 **THE COURT:** I'm just trying to get an idea of
15 the schedule.

16 **MR. WISNER:** He's available to come tomorrow
17 if we have to.

18 (Recess taken at 10:45 a.m.)

19 (Proceedings resumed in open court in the
20 presence of the jury at 10:59 a.m.)

21 **THE COURT:** You may proceed, Mr. Wisner.

22 **MR. WISNER:** Yes, Your Honor.

23 **Q.** All right. Doctor, just before the break, we
24 were talking the category C classification.

25 Now, earlier we talked about this concept of

1 tolerances.

2 So going back in time, back to 1985 when this
3 memo was written, what, if any, was the significance of
4 a category C carcinogen on the ability to sell it and
5 market Roundup?

6 A. You mean EPA classifying glyphosate as a
7 possible human carcinogen?

8 Q. That's right.

9 A. It had very significant regulatory
10 implications because that would prohibit the EPA from
11 establishing higher tolerances that would be needed to
12 expand the use of Roundup on a wide range of crops. So
13 it had a very direct effect on the market potential for
14 future Roundup sales.

15 Q. Now, you said -- are you familiar with
16 something called the Delaney Clause?

17 A. Yes.

18 Q. How are you familiar with it, sir?

19 A. Probably -- the impact of the Delaney Clause
20 on pesticide regulation and in particular the regulation
21 of cancer-causing pesticides has been probably the
22 public policy issue I've spent the most time on in my
23 entire career.

24 Q. Have you written books about it?

25 A. I've written books and reports and articles,

1 yes.

2 **Q.** Have you actually testified before Congress
3 about this issue?

4 **A.** Multiple times.

5 **Q.** Okay. So walk the jury through what the
6 Delaney Clause is and specifically how a category C
7 classification is implicated.

8 **A.** Okay. The Delaney Clause was added to the
9 Food, Drug, and Cosmetic Act, which is another major
10 federal statute that governs things like food additives.
11 So food additives, like a coloring agent or a
12 preservative that General Mills would put in a cereal or
13 whatever.

14 The Delaney Clause is really a very simple
15 clause. It says thou shalt not add a known carcinogen
16 into food as a food additive.

17 So it was passed into the -- the Delaney
18 Clause amended Section 409 of the Food, Drug, and
19 Cosmetic Act. Section 409 of the Food, Drug, and
20 Cosmetic Act is the authority under which a certain
21 class of pesticide tolerances are established, and in
22 particular, tolerances for residues in processed foods.
23 Foods other than -- when an apple is harvested off of a
24 tree or a grape taken, that's a fresh raw food in its
25 fresh form.

1 And, yes, there are tolerances covering the
2 residues of pesticides that might have been legally
3 applied on the apple tree, on the apple and on the
4 grape. But, remember, a lot of us eat grapes as
5 raisins. So if you -- what happens between a fresh
6 grape and a raisin, you take the water out. So it's
7 much lighter, but the pesticides stay in it.

8 So if you were to measure the level of a
9 pesticide in a raisin compared to the grape, it will be
10 much higher. And to cover those higher residues, a food
11 additive tolerance needed to be established under
12 Section 409 of the Food, Drug, and Cosmetic Act. But
13 that provision was -- had as part of it the Delaney
14 Clause.

15 So if there was evidence of possible oncogenic
16 effect, the EPA would be blocked, it would be illegal to
17 establish those tolerances.

18 So this was the significance of the EPA's
19 judgment that this 1983 mouse study showed that
20 glyphosate, you know, was a possible carcinogen, it
21 really would block the approval of the next batch of
22 tolerances that Monsanto had to get on the books in
23 order to allow the use of Roundup to expand.

24 Q. All right. So they categorized it as a
25 class C, and shortly after that the EPA and Monsanto had

1 a conversation; is that right?

2 A. Yes.

3 Q. And you know about this because -- have you
4 seen this in a memo before?

5 A. Oh, there's extensive documentation in the
6 record of the case of what happened actually the very
7 day that Monsanto found out that Dykstra's review was
8 going to --

9 MR. BROWN: Excuse me.

10 THE WITNESS: -- find that --

11 MR. BROWN: Excuse me, Your Honor. There's no
12 question pending. This is speculation. Lacks
13 foundation. Calls for speculation.

14 THE COURT: The question was: And you know
15 this because you've seen this in a memo.

16 So that's the question.

17 MR. WISNER: Okay.

18 Q. Doctor, I want to draw your attention to an
19 exhibit that's actually in evidence, Exhibit 73 in your
20 binder.

21 Do you have it, sir?

22 A. Yes, sir.

23 Q. It's also on the screen if you want to use
24 that as well, whatever you prefer.

25 Now, is this one of the memos that you're

1 referring to?

2 A. Yes.

3 Q. And this is dated February 22nd, 1985. So
4 this is approximately 10 days after the consensus
5 statement by the EPA?

6 A. Correct.

7 Q. All right. And if we go down here, we see a
8 bunch of individuals who are present. Do you see that,
9 sir?

10 A. Yes.

11 Q. And some of them have names, for example: Ted
12 Farber, a branch chief. Do you see that?

13 A. Correct.

14 Q. And above that it has Bill Burnam, and it says
15 Assistant Chief OPP Toxicology Branch?

16 A. Correct.

17 Q. Who are these individuals within the
18 regulatory context?

19 A. These are the top people in the Tox Branch
20 that were responsible for evaluating cancer studies like
21 this 1983 Biodynamics mouse study.

22 Q. And these three individuals right here, are
23 they with Monsanto?

24 A. They were the --

25 **MR. BROWN:** Excuse me. Lacks foundation.

1 Calls for speculation. And hearsay.

2 **THE COURT:** Sustained.

3 **BY MR. WISNER:**

4 **Q.** Do you see the name Lyle Gingerich there?

5 **A.** Yes.

6 **Q.** And this is a memo by Monsanto; right?

7 **A.** Correct.

8 **Q.** Let's look and see who signed this document.

9 Who signed it, sir?

10 **A.** This memo was prepared by --

11 **MR. BROWN:** Excuse me, Your Honor. I'm going
12 to object. The document speaks for itself. The
13 question is argumentative.

14 **THE COURT:** Sustained.

15 **MR. WISNER:** The question is who signed it? I
16 can't ask that question?

17 **THE COURT:** It speaks for itself.

18 **MR. WISNER:** Okay.

19 **Q.** Was the document signed by Monsanto's
20 employee?

21 **A.** Yes.

22 **Q.** When we go into this document, there is a
23 couple of things that I want to ask you about, about
24 what they mean.

25 So we see here: Concerns of the Toxicology

1 Branch. Do you see that?

2 A. Yes.

3 Q. And it says right here: Oncogenic in mouse,
4 IARC ranking C. Do you see that?

5 A. Yes.

6 Q. Do you know what an IARC ranking C is back in
7 1985?

8 A. Possible human oncogen.

9 Q. And it says down here: Biologically
10 significant rare tumors. Do you see that?

11 A. Yes.

12 Q. And statistically significant at the .5 level.
13 Do you see that?

14 A. Correct.

15 Q. Do you know what that's referring to?

16 A. Yes. The -- remember from the table that
17 Mr. Wisner showed before, there was zero, zero, one,
18 three renal tubular adenomas in the male mice.

19 It's that trend that was statistically
20 significant, showing that there was a response to the
21 feeding of glyphosate.

22 Q. So I'm actually going to go a few pages ahead.
23 For example, I just want to visually depict this, sir.

24 So if we have a -- kind of plot out the four
25 groups. Okay.

1 We have the control, low, mid, and high dose;
2 right?

3 A. Correct.

4 Q. And here there's no tumors?

5 A. Zero.

6 Q. Here there's no tumors?

7 A. Zero, yep.

8 Q. How many are in the middle dose?

9 A. One.

10 Q. So we'll put one there. And how many in the
11 high dose?

12 A. Three. You put a zero there.

13 Q. I'll do that as a tumor.

14 So here we have three; right?

15 A. Yes, sir.

16 Q. And if we draw a line through this, is that
17 the slope you're talking about?

18 A. Essentially, yes.

19 Q. Okay. And then if you go into this document
20 here, it reads "FJ asked." Do you see that?

21 A. Yes.

22 Q. And if we go to the beginning of the document,
23 who here has the initials of FJ?

24 A. Fred Johannsen.

25 Q. Okay. And to the best of your knowledge, was

1 Fred Johannsen a Monsanto employee?

2 **MR. BROWN:** Objection. Lacks foundation.

3 **THE COURT:** Sustained.

4 **BY MR. WISNER:**

5 **Q.** Do you know if Fred Johannsen was a Monsanto
6 employee?

7 **A.** Yes.

8 **Q.** Was he a Monsanto employee?

9 **A.** Yes.

10 **Q.** And it says here:

11 Short of a new study or finding
12 tumors in the control groups, what can we
13 do to get this thing off group C.

14 Do you see that?

15 **A.** Yes.

16 **Q.** All right. So finding tumors in the control
17 group, how would that have any influence on this?

18 **A.** If there was --

19 **MR. BROWN:** Excuse me. Calls for speculation.
20 Lacks foundation.

21 **THE COURT:** Overruled.

22 **THE WITNESS:** Given that EPA and exercising
23 its regulatory responsibilities has to statistically
24 analyze the occurrence of tumors in the control and the
25 three feeding groups. Whether there is a consistent

1 slope in that line is absolutely essential. It's what
2 determines whether the study is positive for renal
3 tubular adenomas in the male mice or negative.

4 So you can imagine if there was one tumor in
5 the control group, that line shifts up and becomes
6 probably an equivocal finding at that point.

7 Q. So if we draw in this tumor, it would change
8 the line more flat; is that right?

9 A. Correct.

10 Q. Okay. Following -- well, actually earlier in
11 this document, it said -- and I had that section blown
12 up for a reason -- it says right here: We'll ask to
13 resection tissues, consider crystal formations,
14 et cetera. Do you see that?

15 A. Yes.

16 Q. What does it mean to resection tissues?

17 A. The Biodynamics scientists would pull the
18 kidneys out of the deep freezer, thaw them out and then
19 cut fresh slides from the kidney to provide a second
20 reading of whether -- whether there are, in this case,
21 renal tubular adenomas in the various kidneys from the
22 control group, the low, medium, and high treatment
23 group.

24 Q. Have you reviewed the documentation related to
25 the resection of this?

1 A. Yes.

2 Q. Did Monsanto hire anybody to relook at these
3 kidney tumors?

4 A. Yes.

5 Q. Who did they hire?

6 A. A Dr. Kushner was the principal pathologist
7 that they hired. But then there were several others
8 that were also hired and asked to express their opinion
9 about whether there was actually a tumor in the
10 particular male control mouse that has been talked
11 about, I'm sure, during the course of this trial.

12 Q. And when Dr. Kushner reviewed these tumor
13 slides, did he discover this tumor in the control group?

14 A. He reported that he saw one.

15 Q. Okay. How do you spell Kushner?

16 A. K-U-S-C-H-N-E-R, I believe.

17 Q. And when he found that -- when he claims to
18 have found that tumor, did it affect the slope?

19 A. Yes.

20 Q. Now I want to back up a little bit because
21 before that whole tumor thing occurred, there was a
22 report issued by an EPA statistician. Are you familiar
23 with that?

24 A. Yes, I am.

25 Q. Turn to Exhibit 1375 in your binder. Is that

1 that report?

2 A. Yes, it is.

3 Q. Now, it's already in evidence so I'm going to
4 put it up on the screen.

5 (Exhibit displayed.)

6 **BY MR. WISNER:**

7 Q. And we have here a report, you see it's
8 written by Herbert Lacayo, a statistician. Do you see
9 that?

10 A. Yes.

11 Q. And if we go into what he's doing here, the
12 background, it's -- is it talking about this mouse
13 study?

14 A. Yes, it is.

15 Q. It reads here:

16 The registrant, Monsanto, claims that
17 such tumors are unrelated to treatment.

18 In support of that, they provide
19 historical data from Biodynamics and two
20 other laboratories.

21 Do you see that?

22 A. Yes.

23 Q. And then if you look down here, if you go to
24 the summary, there is some remarks by the statistician.
25 Do you see that?

1 **A.** Yes.

2 **Q.** Okay. The first thing I want to point out is
3 right here, and this is on page 3 where Dr. Lacayo has
4 done sort of a probability analysis. Do you see that?

5 **A.** Yes.

6 **Q.** And just don't get into too many details, we
7 don't need to get into it, but what generally was
8 Dr. Lacayo doing?

9 **A.** He was trying to assess --

10 **MR. BROWN:** Excuse me, Your Honor. I'm going
11 to object. Calls for speculation.

12 **MR. WISNER:** Your Honor, I'm just trying to
13 explain the document and what it says.

14 **THE COURT:** Overruled. He can answer if he
15 knows.

16 **MR. WISNER:** Yeah.

17 **Q.** Sir, do you know what this analysis is
18 generally doing?

19 **A.** Yes, he's trying to quantify the odds that
20 there would be a tumor in a particular number of mice in
21 a control group.

22 **Q.** He writes:

23 Another way of saying this is that if
24 glyphosate were truly unrelated to kidney
25 production, we would expect to see four

1 more tumors in less than one out of 100
2 experiments of the type sponsored by
3 Monsanto.

4 Do you see that?

5 **A.** Yes.

6 **Q.** Can you explain what that means?

7 **A.** So, remember, in the chart there were four
8 renal tubular adenomas identified by the Biodynamics
9 pathologist that read the original slides. And what
10 Dr. Lacayo did was he calculated the odds of it in a
11 study with this number of mice in each of the groups,
12 started out with 50 in each of the groups, what are the
13 odds of there being four tumors. And that's what this
14 table shows.

15 **Q.** And he goes: Thus glyphosate is suspect. Do
16 you see that?

17 **A.** Correct.

18 **Q.** And with regard to suspect, is that because
19 the likelihood of seeing four tumors, these rare tumors,
20 was astronomically small?

21 **A.** Very small.

22 **Q.** Okay. And then he talks about something
23 called false positives. Do you see that?

24 **A.** Yes.

25 **Q.** What is a false positive?

1 **A.** A false positive is a study that appears to
2 contain data suggestive of a biological response or of
3 cancer when in fact there is no underlying impact.

4 **Q.** Okay. And Dr. Lacayo goes on to discuss this
5 concept of false positive. And I want to sort of look
6 at this part right here. Well, look at the bottom part.
7 It says:

8 Viewpoint is a key issue. Our
9 viewpoint is one of protecting the public
10 health when we see suspicious data. It is
11 not our job to protect registrants from
12 false positives. We sympathize with the
13 registrant's problem, but they would have
14 to demonstrate that this positive result
15 is false.

16 Do you see that?

17 **A.** Correct.

18 **Q.** And this is something that I think is
19 important from a regulatory context. Does the EPA have
20 to prove that it's a negative study or a nonpositive
21 result?

22 **A.** No.

23 **Q.** How does it work?

24 **A.** When the registrants submit the various data
25 requirements, and in this case a two-year mouse cancer

1 study, the EPA looks at the results of the study, and if
2 there is a statistically significant upward trend in the
3 response of a particular tumor, and in this case these
4 renal tubular adenomas, then that is evidence that
5 there's a possible oncogenic response from exposure to
6 the pesticide or the chemical at question.

7 And once EPA has one study that shows such a
8 response, it has typically been the position of the
9 agency that it will be regulated as a possible oncogen.

10 Q. Now, it says right here the registrant will
11 have to demonstrate that this positive result is false.

12 Do you see that?

13 A. Yes.

14 Q. Would one way of demonstrating that it's false
15 be finding a tumor in the control group?

16 A. Yes.

17 MR. BROWN: Objection. The question is
18 argumentative.

19 THE COURT: Overruled. The answer will stand.

20 BY MR. WISNER:

21 Q. And if you look at the date on this, sir, at
22 the very beginning, this is February of 1985; is that
23 right?

24 A. Correct.

25 Q. Okay. When was Dr. Kushner hired to look at

1 these kidney tumors?

2 A. I believe it was in April.

3 Q. So this statement about demonstrating
4 falseness, that was before Dr. Kuschner found -- or
5 claims to have found this tumor?

6 A. Correct.

7 Q. Okay. All right. Well, I don't want to go
8 into the whole story. I just want to break this down
9 because these documents were in evidence, and I wanted
10 the jury to understand it.

11 But there is one sort of other issue that I
12 want to clear up. Following this ordeal with this
13 tumor, did the EPA ever order Monsanto to do a new mouse
14 study?

15 A. Yes.

16 Q. Please explain to the jury what happened.

17 A. Because of the --

18 **MR. BROWN:** Excuse me. The question is vague.

19 **THE COURT:** Overruled. You can answer.

20 **THE WITNESS:** Because the pathologists in the
21 EPA and working for Monsanto disagreed, they simply
22 disagreed. The EPA people didn't see the additional
23 renal tubular adenoma in that male mouse, and the
24 Monsanto-hired pathologists all did. They were at an
25 impasse.

1 And so whenever that happens in -- in the vast
2 majority of cases when that happens in the case of
3 assessing the risks of a particular pesticide, the
4 agency asks for a new study and often a better study.

5 And that's what EPA did in a -- what's called
6 a registration standard document that was issued in
7 1986. It did a data call-in for a new mouse study.

8 **BY MR. WISNER:**

9 **Q.** All right. So going back to our timeline
10 here, 1985, EPA classifies glyphosate as class C; is
11 that right?

12 **A.** Correct.

13 **Q.** And then there was this fight about the tumor.
14 And by 1986 EPA orders new mouse study; is that right?

15 **A.** Correct.

16 **Q.** Now, did they also order a new rat study as
17 well?

18 **A.** Yes.

19 **Q.** What happened to the -- well, let's pull up
20 the board. But we have the rat studies here.

21 And this study from 1981, that was a Monsanto
22 study; is that right?

23 **A.** Correct.

24 **Q.** What was wrong with this study? Why wasn't
25 this enough?

1 **A.** It was another IBT study, I believe.

2 **Q.** No, this is 1981.

3 **A.** Oh, the 1981. Okay.

4 **Q.** So they asked for a new -- do you know why
5 they asked for another rat study?

6 **A.** I don't remember.

7 **Q.** That's fine. We don't need to get into it.
8 But they ordered a new mouse study; right?

9 **A.** Yes.

10 **Q.** And this chart here, the jury has seen it
11 quite a bit, these are the mouse studies that we know
12 about related to glyphosate; right?

13 **A.** Correct.

14 **Q.** And that was the 1983 study; right?

15 **A.** Yes.

16 **Q.** And actually just to clarify, Dr. Portier
17 identified a spleen composite lymphosarcoma which is a
18 type of lymphoma in the Knezevich and Hogan study. In
19 your review of the EPA documents, even back in 1983, did
20 they see that?

21 **A.** Yes.

22 **Q.** Okay. So moving forward from 1983 onward, did
23 Monsanto conduct any of these studies?

24 **A.** No.

25 **Q.** So after the EPA ordered Monsanto to conduct a

1 new mouse study to resolve this issue, did they ever do
2 it?

3 A. No.

4 Q. Did the EPA make any accommodations to
5 Monsanto for doing that mouse study?

6 A. EPA, Dr. Dykstra, who had been the EPA
7 toxicologist most involved in this, actually interacted
8 with Monsanto scientists to design a special study
9 designed to definitively determine whether there was an
10 increase in the renal tubular adenomas in male mice. It
11 was kind of a mouse study on steroids in effect. He
12 wanted 250 animals per group instead of 50, which would
13 increase the statistical power of the study.

14 And the EPA called for Monsanto to only do the
15 histopathology on the liver and the kidney to keep the
16 costs down because they were asking for a lot of animals
17 to be in the study. And if there was no evidence of any
18 problems in the liver and kidney, then Monsanto wouldn't
19 have to do any other diagnostic work.

20 So it was a big, very powerful --
21 statistically powerful study designed just to resolve
22 the issue over renal tubular adenomas in male mice.

23 Q. Did that study ever get done?

24 A. No.

25 Q. And every study afterwards, is it your

1 understanding that they found malignant lymphoma in mice
2 exposed to glyphosate?

3 A. Yes.

4 Q. Going through this process from 1986, was --
5 well, let me back up.

6 Are pesticides just approved one time and
7 they're good forever? Or is there a reregistration
8 process with the EPA?

9 A. The regulatory status of pesticides evolves in
10 two principal tracks. One is the company wants to get
11 registrations to allow more crops to be treated or
12 different circumstances where an application can be
13 legal. The company might want to start selling the
14 product into the home market for people like the
15 Pilliods to use.

16 So as the diversity and number of uses of a
17 currently registered pesticide expands, the company
18 often is required by EPA to submit -- to develop and
19 submit new data to support those uses.

20 The other track and circumstance in which EPA
21 asks for new data and does a fresh assessment is through
22 what's called the reregistration process. And one of
23 the things when I was the -- back in the day when I was
24 the staff director of the subcommittee with jurisdiction
25 over the FIFRA statute, the nature of that

1 reregistration process, what had to be done with it, who
2 paid for the data, was issues that were constantly under
3 debate.

4 But so in the early 1980s when all of the
5 debate was going on about these mouse studies,
6 et cetera, glyphosate was in what's called the
7 registration review process. And that provided EPA with
8 sort of an opportunity to take a new look at all the
9 science that was available at the time.

10 And in 1986 they issued what's called a
11 registration standard, and that document set forth what
12 EPA had to do in order to qualify for or get EPA
13 approval of existing and new uses of glyphosate.

14 Q. When was --

15 MR. BROWN: Excuse me, Your Honor. I'm going
16 to object and move to strike. The answer was
17 nonresponsive.

18 THE COURT: Overruled. The answer stands.

19 BY MR. WISNER:

20 Q. Now, Doctor, when was glyphosate -- so the
21 original registration, right, that's back in 1974;
22 right?

23 A. Correct.

24 Q. And that was based on the IBT fraud?

25 A. The IBT cancer study was the only two-year

1 cancer study available to the agency.

2 Q. And four of the genotox studies; right?

3 A. Right.

4 Q. So the next time after 1974 that glyphosate is
5 reregistered by the EPA is what year?

6 A. 1986.

7 Q. That's the guidance document; right?

8 A. Well, that guidance document set out the terms
9 and conditions for continuing the registrations that
10 were currently on the books, but also to -- if EPA were
11 to approve any new registrations for additional uses.

12 Q. But when did the final reregistration happen?

13 A. Well, it would kind of depend on what product
14 you're talking about because the actual approval of
15 these different labels, they go through the EPA process
16 on different time schedules.

17 Q. Sure. Are you familiar with, you know, a
18 15-year cycle of reregistration?

19 A. That is in the basic FIFRA statute as the
20 goal, that every 15 years currently registered
21 pesticides will be reassessed by the EPA and the
22 underlying database supporting current uses will be
23 brought up to current scientific standards.

24 Q. That's exactly what I'm talking about.

25 So following 1974, when did that actually

1 happen next?

2 **A.** It happened in the early '80s and led to the
3 issuance in 1986 of this registration standard document.

4 **Q.** Okay. Are you familiar with the 1993 RED
5 document?

6 **A.** Correct. That would be the next cycle.

7 **Q.** Oh, so this is actually part of that cycle?

8 **A.** No. They changed the name of this review
9 process a couple of times. There's been registration
10 standards. That was kind of in the '80s.

11 **Q.** Gotcha.

12 **A.** And then they went to reregistration. And
13 then they went to what's called a RED, which is a
14 reregistration eligibility document, RED. Very
15 confusing.

16 **Q.** And that was in 1993?

17 **A.** Yeah. By 1993, they called them -- I believe
18 they called them a RED at that point. But that was the
19 next reregistration cycle.

20 **Q.** And in 1993 the only animal data that they had
21 were the two rat studies and the mouse study; right?

22 **A.** Correct.

23 **Q.** And they didn't really have any epidemiology?

24 **A.** Well, EPA never requires pesticide registrants
25 to do epidemiological studies. And I don't think any of

1 the glyphosate non-Hodgkin's lymphoma epidemiological
2 studies had been published at that point.

3 Q. Okay. So that was in 1993. When did the next
4 cycle for reregistration get set for?

5 A. I believe it started in 2005 or '6.

6 Q. Has it completed yet?

7 A. No.

8 Q. So the last official reregistration that's
9 finalized was in 1993?

10 A. Correct.

11 Q. Before the epi?

12 A. Correct.

13 Q. And if you look at the mouse boards, just look
14 at the dates here, it was before -- well, actually it
15 was before Atkinson too; right?

16 A. Correct.

17 Q. So all these studies were after?

18 A. Correct.

19 Q. And if we look at the mouse charts, all of
20 these malignant lymphoma findings were after?

21 A. Correct.

22 Q. In the current status of the reregistration, I
23 want to talk a little about that. You said started
24 2005; is that right?

25 A. Around then, yes.

1 Q. Are you familiar with something called CARC?

2 A. Yes.

3 Q. What is the CARC?

4 A. It's the Cancer Assessment Review Committee,
5 which is -- it's an internal committee within the Office
6 of Pesticide Programs composed of their senior
7 scientists with expertise in, again, biostatistics,
8 pathology, toxicology, oncogenicity.

9 Q. So if you turn to Exhibit 547 in your binder,
10 it's in evidence already, and we turn to the second
11 page, there's this e-mail exchange between Daniel
12 Jenkins and William Heydens and Jennifer Listello. Do
13 you see that?

14 A. Yes.

15 Q. It says down here:

16 Jess called me out of the blue this
17 morning.

18 Do you see that?

19 A. Yes.

20 Q. And this is from April of 2015; right?

21 A. Yes.

22 Q. And this is -- I guess this is just shortly
23 after the IARC classification?

24 A. Yeah, very shortly after.

25 Q. All right. Go down to the e-mail. It says

1 right here --

2 **MR. BROWN:** Excuse me, Your Honor. I'm going
3 to object. Foundation. Speculation.

4 **THE COURT:** There's no question pending. The
5 document is in evidence.

6 **MR. BROWN:** Yeah, there's no foundation. This
7 witness isn't qualified to testify concerning this
8 document.

9 **THE COURT:** I don't know what the question is
10 yet. And so wait until the witness is asked a question
11 about it.

12 **BY MR. WISNER:**

13 **Q.** All right. So it says down here:

14 I am the chair of the CARC and my
15 folks are running this process for
16 glyphosate in reg review. I've called a
17 CARC meeting in June.

18 We talked about CARC a second ago. Is that
19 your understanding of that CARC there?

20 **A.** Yes.

21 **MR. BROWN:** Objection, Your Honor. There's no
22 foundation. This is hearsay as to this witness.

23 **THE COURT:** I'm sorry. The question was: Is
24 this the CARC you're talking about, what are you
25 referring to?

1 **MR. WISNER:** A second ago, I asked him what
2 CARC was.

3 **THE COURT:** Right.

4 **MR. WISNER:** And now I'm asking if that's the
5 same CARC. It's a document in evidence. I'm trying to
6 clarify what these terms mean.

7 **THE COURT:** Sustain the objection. There's no
8 foundation for what that is by that author.

9 **MR. WISNER:** Okay.

10 **BY MR. MILLER:**

11 **Q.** Well, fair enough.

12 Are you familiar with something called reg
13 review?

14 **A.** Yes.

15 **Q.** What is that from a regulatory perspective?

16 **A.** That's this every 15 year rereview. It's the
17 regulatory review of all registered pesticides. And
18 this, of course, is referring to the reregistration
19 review of glyphosate.

20 **Q.** And in April of 2015 shortly after the IARC
21 classification, is your understanding that CARC was
22 doing a reg review for glyphosate?

23 **A.** Yes, it was.

24 **Q.** And are you familiar with who was in charge of
25 that reg review?

1 **A.** Yes, I am.

2 **Q.** And was that person by the name of Jess
3 Rowland?

4 **A.** Yes.

5 **Q.** Okay. Turn to Exhibit 705 in your binder. Is
6 that a copy of the CARC review?

7 **A.** The report following the review, yes, it is.

8 **Q.** What is it dated, sir?

9 **A.** October 1, 2015.

10 **Q.** So it was after this e-mail that we looked at?

11 **A.** Correct.

12 **Q.** And is Jess Rowland a signatory to this
13 document?

14 **A.** It's from Jess Rowland.

15 **Q.** Okay. One of the things that came up earlier
16 during Dr. Portier's testimony was a discussion of one
17 of these mouse studies. It was the Kumar study from
18 2005. Are you familiar with that study, sir?

19 **A.** Yes, I am.

20 **Q.** And there was a discussion about the EPA
21 report dismissing this finding because of this supposed
22 viral infection. Are you familiar with that issue?

23 **A.** Yes, sir.

24 **Q.** In this CARC report that's in front of you,
25 and if you want I can direct you to the page, is there a

1 discussion of that study, sir?

2 A. Yes, there is.

3 Q. And is there language specifically related to
4 a viral infection in the Kumar study?

5 A. Yes.

6 Q. Now, if you turn to Exhibit -- do you have the
7 page in front of you where it says that?

8 A. No. I'm -- what page is it?

9 Q. Let me find it for you. It would be I think
10 on page 40.

11 A. It's a long one.

12 Q. Yeah, I know. It's not page 40. Give me one
13 second.

14 It will be page 39. Sorry.

15 Do you have 39 there?

16 A. Yes, sir.

17 Q. And if you look at the bottom bullet point
18 there, do you see the discussion?

19 A. Yes. Yes. Yes.

20 Q. And it talks about -- well, just read through
21 that and make sure it's fresh in your mind. Okay?

22 Do you see that?

23 All right. So I want to turn to Exhibit 3036.

24 Okay?

25 Is that the most recent version of the EPA's

1 issue paper related to glyphosate?

2 A. Yes, it is.

3 MR. WISNER: Permission to publish,
4 Your Honor. It's actually been published before. So...

5 THE COURT: Any objection?

6 MR. BROWN: Not to 3036.

7 BY MR. WISNER:

8 Q. So here we have Exhibit 3036. And just to
9 give the jury a quick background, what is an issue paper
10 in the context of a CARC review?

11 A. It's where the EPA is explaining in detail the
12 studies that it looked at in the area of animal
13 bioassays, in epidemiology, in genotoxicity, in
14 mutagenicity, in reaching its classification decision
15 about glyphosate relative to its potential to cause
16 cancer. It's like the full report, the most complete
17 articulation of the scientific basis for EPA's decision.

18 Q. Is it a final report?

19 A. Not at this point.

20 Q. And this was in December of 2017?

21 A. Correct.

22 Q. It's been over almost two years now. No, a
23 year and a half?

24 A. Correct.

25 Q. And has the EPA reregistered glyphosate yet?

1 **A.** No.

2 **Q.** If you turn to page 70 in this document, we
3 have this discussion of the Kumar study at bullet
4 point 4. Do you see that?

5 **A.** Getting there.

6 **Q.** Sure.

7 **A.** Yes.

8 **Q.** And it says here that this study was not
9 included due to the presence of a viral infection in the
10 colony which confounded the interpretation of the study
11 findings. Do you see that?

12 **A.** Yes.

13 **Q.** It also notes that malignant lymphomas were
14 reported in this study in all dose groups. Do you see
15 that?

16 **A.** Yes.

17 **Q.** Now, it has a citation there, 14. Do you know
18 where that goes to?

19 **A.** Citation to what?

20 **Q.** It has a footnote 14.

21 **A.** Oh, yes, it goes to the Greim's study.

22 **Q.** Okay. So they're citing a publication;
23 correct?

24 **A.** Yeah, peer-reviewed publication.

25 **Q.** And have you reviewed that Greim study before?

1 **A.** Yes.

2 **Q.** Let's look at Exhibit 2064 in your binder.

3 **A.** 2064. No, that's not it.

4 **Q.** Well, I don't have it. So we'll just move on.
5 We'll come back to that later. I don't want
6 to spend time on it until I have it.

7 All right. One of the things that has been
8 discussed is -- well, on that viral infection, does the
9 Greim paper discuss it?

10 **A.** Yes, it does.

11 **Q.** And does it characterize it as a speculative
12 assertion?

13 **A.** That's a fair characterization, yes.

14 **Q.** And yet the EPA report does not do that, does
15 it?

16 **A.** Yes. It states it as the reason that they
17 discounted the positive tumor finding in the study.

18 **Q.** All right. If you go back to the EPA report,
19 I actually want to ask you about another thing that I
20 found interesting.

21 So we have here on page 85. Do you see that,
22 sir?

23 **A.** I'm getting there.

24 Okay, I'm there.

25 **Q.** And we have the Reyna and Gordon study from

1 1973. Do you see that?

2 A. Yes.

3 Q. That study, Reyna and Gordon from 1973, are
4 you familiar with that study?

5 A. Yes.

6 Q. All right. Let's go to the reference. I
7 believe it's 156. And I can just pop it up here
8 quickly.

9 Reyna and Gordon, do you see that?

10 A. Yes.

11 Q. And this is the study that was performed by
12 Industrial Bio-Test Laboratories; is that right?

13 A. Yes, it is.

14 Q. Okay. I mean, is this the same study?

15 A. The same invalid study, yes.

16 Q. Hold on a second. Let's just verify this.

17 So it says right here B569. Do you see that?

18 A. Correct.

19 Q. Let's go back and look at that EPA document
20 that we were looking at about the studies. And if we go
21 to glyphosate, and we look at the carcinogenicity study,
22 that's the one that was invalid; right?

23 A. Right.

24 Q. What's the identifier?

25 A. B569.

1 **MR. BROWN:** I'm sorry, which exhibit number is
2 that?

3 **MR. WISNER:** It's 1364.

4 **Q.** So that's the same study?

5 **A.** Yes.

6 **Q.** And this is the study that was deemed invalid;
7 is that right?

8 **A.** Correct.

9 **Q.** So if we go back to the actual paper and look
10 at what the EPA said about this study and it's
11 discussing Reyna and Gordon, does it mention anything
12 about the EPA reviewing the raw data and comparing it to
13 the results that conclude it's invalid?

14 **A.** No.

15 **Q.** So, sir, based on what they say here in their
16 own documents, EPA is citing as evidence of a lack of
17 carcinogenicity a study based on fraud?

18 **MR. BROWN:** Objection, Your Honor. Lacks
19 foundation. It's also argumentative.

20 **THE COURT:** Sustained.

21 (Sidebar held but not reported.)

22 **BY MR. WISNER:**

23 **Q.** All right. So we were looking at this study
24 and we were talking -- and we were talking about the
25 Knezevich -- I'm sorry -- the Reyna and Gordon study. I

1 just want to establish this is in fact the IBT study
2 that was deemed invalid?

3 A. Yes, it is.

4 Q. And having reviewed this document, have you
5 seen any concession or acknowledgment by the EPA that
6 this was in fact an invalid study?

7 A. There is none.

8 Q. All right. I want to talk a little bit about
9 some of the data in here. I understand you've actually
10 published an analysis comparing what the EPA did with
11 what IARC did; is that right?

12 A. In the area of genotoxicity, yes.

13 Q. Exactly.

14 Can we look -- if you look in your binder,
15 Exhibit 2349, is that a copy of your article, sir?

16 A. That's a copy of my, yeah, scientific paper
17 published in *Environmental Sciences Europe*.

18 MR. WISNER: Permission to publish,
19 Your Honor?

20 THE COURT: Granted.

21 BY MR. WISNER:

22 Q. All right. So we're looking at your
23 publication here. And it looks like the title of it is:
24 "How did the U.S. EPA and IARC reach diametrically
25 opposed conclusions on the genotoxicity of

1 glyphosate-based herbicides?"

2 Do you see that?

3 A. Yes.

4 Q. Sir, why did you write this article?

5 MR. BROWN: Well, I'm going to object,
6 Your Honor. It's irrelevant. It also exceeds the scope
7 and it lacks foundation.

8 THE COURT: I think we're getting afield.

9 BY MR. WISNER:

10 Q. Okay. Let me ask you this. What did you do
11 in this paper? Don't tell me the conclusions. Just
12 tell me what you did.

13 MR. BROWN: Objection. Irrelevant.

14 THE COURT: Sustained.

15 Counsel come to the sidebar, please.

16 (Sidebar held but not reported.)

17 BY MR. WISNER:

18 Q. All right. Sir, I guess we can just cut to
19 the chase on this. Are you familiar with something
20 called a registrant study?

21 A. Yes.

22 Q. What is a registrant study in the context of
23 regulations?

24 A. It's a study either conducted in a laboratory
25 of a pesticide registrant or a contract laboratory on

1 behalf of the registrant that is submitted to the EPA in
2 fulfillment of a data requirement needed to support EPA
3 approval of a pesticide use or a pesticide tolerance.

4 **Q.** Are registrant studies made publicly available
5 to be subject to peer review?

6 **A.** Typically not.

7 **Q.** So, for example, all of these mouse studies
8 that were done either by the registrant or a contract
9 laboratory, were these published in peer-reviewed
10 literature to be peer-reviewed at the time they were
11 done?

12 **A.** No.

13 **Q.** So who does look at them when they're
14 completed?

15 **A.** The -- within the Toxicology Branch of EPA,
16 any of these new studies would be assigned to a
17 particular reviewer. In the case of the 1983
18 Biodynamics study, to Dykstra, and he would look at the
19 2,000-page report and all the individual tables on the
20 different mice and do a review, his own fresh review of
21 the results reported in the study, and then prepare a
22 memo to -- you know, other people in the Office of
23 Pesticide Programs about his determination relative to
24 what that study shows.

25 **Q.** Now, that article we had up a second ago, was

1 that article subject to peer review?

2 A. Yes.

3 Q. How much peer review?

4 A. The journal actually had it reviewed by ten
5 different peer reviewers.

6 Q. And walk the jury through what that means.

7 A. So when a --

8 MR. BROWN: Excuse me, Your Honor.

9 THE WITNESS: -- scientist submits --

10 MR. BROWN: Excuse me, Your Honor. This is
11 irrelevant.

12 THE COURT: Overruled. He can answer.

13 THE WITNESS: When a scientist submits a paper
14 to a scientific journal, it's the journal editor sends
15 it out to other scientists with expertise in the field
16 for their assessment of the validity of the data, the
17 appropriateness of the analytical methods that are used
18 to interpret the data, the conclusions that are drawn
19 from the data, and any discussion of the implications,
20 say, for the regulatory status of a pesticide or a
21 policy or whatever.

22 BY MR. WISNER:

23 Q. And as the paper goes through this rigorous
24 peer-review process, does it make generally the
25 publication stronger?

1 **A.** Oh, absolutely.

2 **Q.** Why is that?

3 **A.** Because other scientists who often have much
4 deeper expertise than -- I mean, I'm not a
5 genotoxicologist, but my paper was reviewed by several
6 of them, some of the top ones in the country, and they
7 shared their suggestions on how I can improve the paper,
8 make it clearer.

9 I had 26 pages of comments on this paper, and
10 I believe strongly that the peer-review process made it
11 a more -- a more solid and well-grounded paper.

12 **Q.** Now, as part of this paper and as part of your
13 work investigating in this case, have you looked at how
14 often the registrant studies that are not subject to
15 peer review are positive and how often the peer-review
16 studies that are subject to that are positive?

17 **A.** Yes.

18 **Q.** And what is the difference?

19 **A.** It's quite substantial.

20 **Q.** What is it?

21 **A.** Well, in the case of the genotoxicity data
22 that I analyzed in this paper, the registrants -- the
23 registrant studies covered 95 different assays. So this
24 would be an individual test of whether glyphosate
25 technical, the chemical that's in Roundup, or the

1 formulated product, which would be the glyphosate and
2 the surfactants, triggered a genotoxic response in a
3 given assay or a given test.

4 There were 95 of those registrant studies done
5 and submitted to EPA, and one of them reported a
6 positive response and 94 of them didn't.

7 **Q.** So one out of 94; is that right?

8 **A.** Correct.

9 **Q.** And these are the ones that only the
10 registrant and EPA look at?

11 **A.** Correct.

12 **Q.** What about the ones that the rest of the world
13 gets to look at?

14 **A.** So in the -- both the EPA analysis and the
15 IARC analysis, there were about 122 different assays
16 considered that have been published in peer-review
17 journals typically by scientists not working for
18 pesticide manufacturers. And of those, 73 percent
19 reported one or more positive response.

20 **Q.** Do you know what the number was, since we did
21 a fraction?

22 **A.** Yes, 89.

23 **Q.** Okay. And I think that's approximately
24 1 percent; is that right?

25 **A.** Correct.

1 **Q.** So I just want to make sure I understand the
2 significance of this finding. The study is done by the
3 manufacturers that no one gets to see. Only 1 percent
4 are positive.

5 **MR. BROWN:** The question is argumentative.

6 **THE COURT:** Sustained.

7 **THE WITNESS:** Well, the EPA gets to see them.

8 **MR. WISNER:** Don't answer.

9 **THE COURT:** Sustained and stricken. Move on.

10 **BY MR. WISNER:**

11 **Q.** Fair enough. I just want to clarify, though,
12 the question I was trying to articulate is: This group
13 of studies, they're performed by the manufacturers; is
14 that right?

15 **A.** Either by them or under contract for them.

16 **Q.** And these ones are primarily done by
17 independent researchers?

18 **A.** Typically university-based scientists, yes.

19 **MR. WISNER:** Okay. I'm moving on to another
20 topic, Your Honor. This might be a good time for lunch.

21 **THE COURT:** That's fine. We'll take an hour
22 for lunch. Be ready at 5 of.

23 Don't discuss anything you've heard today or
24 any other time during the trial. Enjoy lunch and we'll
25 see you in an hour.

1 (Recess taken at 11:56 a.m.)

2 (Proceedings resumed in open court in the
3 presence of the jury at 1:04 p.m.)

4 **THE COURT:** You can continue, Mr. Wisner.

5 **MR. WISNER:** Thank you, Your Honor.

6 **Q.** Doctor, just before lunch, we were looking at
7 the 2017 EPA issue paper draft; correct?

8 **A.** Correct.

9 **Q.** Okay. And I want to ask you a quick question
10 before we move on from the document. If you look at --
11 on page 68 of the document at the very end of the
12 epidemiological section, it says:

13 Based on the weight of the evidence,
14 the agency cannot exclude chance and/or
15 bias as an explanation for observed
16 associations in the database. Due to
17 study limitations and contradictory
18 results across studies of at least equal
19 quality, a conclusion regarding the
20 association between glyphosate exposure
21 and risk of NHL cannot be determined based
22 on the available data.

23 Sir, does that mean that the EPA says it
24 doesn't cause NHL?

25 **A.** No.

1 Q. What does that mean?

2 A. It means that it can't draw a definitive
3 conclusion one way or the other from the data that it
4 has available to it.

5 Q. It then says:

6 The agency will continue to monitor
7 the literature for studies, and any
8 updates to the AHS will be considered when
9 available.

10 Do you see that?

11 A. Yes.

12 Q. Since December of 2017, have there been new
13 epidemiological studies published?

14 A. Yes.

15 Q. Can you give me -- what are you familiar with?

16 A. There's a study in the journal *Mutation*
17 *Research* by Professor Zhang and two other coauthors.
18 That was a very sophisticated meta-analysis of all the
19 epidemiological studies that had data associating
20 exposure to Roundup and non-Hodgkin's lymphoma.

21 In addition, there was a very large study
22 published by a team of French scientists that pooled
23 data from Scandinavia, France, and the Agricultural
24 Health Study into a combined data set which again, as
25 I've said before, when you have more animals in an

1 animal study, the more people you have in an epi study,
2 the greater the statistical power is. And by that, that
3 means it has a greater chance of detecting a
4 statistically significant increase in a disease outcome
5 like non-Hodgkin's lymphoma.

6 Q. And that Zhang article that you mentioned, did
7 that meta-analysis actually include AHS?

8 A. Yes.

9 Q. And did that meta-analysis show a
10 statistically significant elevated rate for
11 non-Hodgkin's lymphoma?

12 A. Yes, it did.

13 MR. BROWN: Objection, relevance.

14 THE COURT: Sustained.

15 MR. BROWN: Move to strike.

16 THE COURT: Stricken.

17 MR. WISNER: Well, my question, Your Honor, I
18 asked the question because I want to get to this point
19 which is:

20 Q. Since the Zhang article came out showing the
21 results that it showed, has the EPA issued a new
22 statement?

23 MR. BROWN: Objection. Relevance.

24 THE COURT: Sustained.

25 MR. WISNER: Okay.

1 Q. I guess what I'm trying to ask is, is this
2 2017 issue paper the most recent iteration of the
3 reregistration process which is still ongoing?

4 A. Yes, by EPA.

5 Q. All right. I want to move on to a different
6 topic now. I want to specifically talk about Dr. James
7 Parry. Are you familiar with who that is?

8 A. Yes, sir.

9 Q. And if you look in your binder, I believe it's
10 Exhibit 38, is that one of Dr. James Parry's reports?

11 A. You said 38?

12 Q. That's right.

13 A. Yes, it is.

14 **MR. WISNER:** Your Honor, this document is
15 already in evidence, and I will put it up on the screen.

16 **MR. BROWN:** Your Honor, I'm going to object.
17 It's not relevant.

18 **THE COURT:** There's no question pending.

19 (Exhibit published.)

20 **BY MR. WISNER:**

21 Q. Sir, have you reviewed this document?

22 A. Yes.

23 Q. All right. And at the end of the document are
24 a series of -- part of it says "Key issues concerning
25 the potential genotoxicity of glyphosate, glyphosate

1 formulations and surfactants, recommendations for future
2 work." Do you see that?

3 A. I'm getting there.

4 THE COURT: What page are you on, counsel?

5 MR. WISNER: It's on page 32 of the document
6 if you look at the bottom right-hand corner.

7 THE WITNESS: Yes, I'm there.

8 MR. WISNER: Are you there, Your Honor?

9 THE COURT: Yes. Go ahead.

10 BY MR. WISNER:

11 Q. So this -- these recommendations for future
12 work, have you studied them?

13 A. Yes.

14 Q. And have you looked to see whether or not the
15 recommendations and actions proposed by Dr. Parry back
16 in this time frame were ever done?

17 MR. BROWN: Objection. Relevance.

18 THE COURT: Overruled. He can answer.

19 THE WITNESS: Yes, I have looked at that.

20 BY MR. WISNER:

21 Q. Okay. And just to give some context, if you
22 look on the second page it says right here

23 "Recommendations for action." Do you see that?

24 "Actions recommended." Do you see that?

25 A. Yes.

1 Q. And it has A, B, C, D, E. Do you see that?

2 A. Correct.

3 Q. And it goes on to the next page; correct?

4 A. Through "I."

5 Q. Okay. Great.

6 If you look in your binder, sir, there's a
7 chart that I believe you created, Exhibit 3093. It
8 should be towards the end.

9 A. Yeah.

10 Q. What does that chart reflect?

11 A. I have felt all along as I've reviewed the
12 records in the case that the EPA and Monsanto handling
13 of the genotox data were very important and the
14 different view, for example, between EPA and IARC of the
15 overall database. So I paid particular attention to
16 Dr. Parry's report who had been hired by Monsanto to
17 advise it on --

18 MR. BROWN: Excuse me, Your Honor. The answer
19 is nonresponsive.

20 THE COURT: What does the chart reflect?

21 MR. WISNER: It's the foundation for him
22 getting to the answer, Your Honor. He's explaining what
23 he did to get to this chart.

24 THE COURT: Get there now.

25 MR. WISNER: Okay.

1 **THE WITNESS:** In the deposition of a senior
2 toxicologist for Monsanto, Dr. Donna Farmer, her --

3 **MR. BROWN:** Your Honor, I'm going to object.
4 This is irrelevant. Lacks foundation. And it's all
5 hearsay.

6 **THE COURT:** Overruled. He can answer that
7 question.

8 **THE WITNESS:** As part of that deposition,
9 Monsanto entered exhibits that were developed by
10 Dr. Farmer specifying in great detail what genotox
11 studies Monsanto did in response to Dr. Parry's report,
12 I mean down to the individual studies.

13 When I learned of that exhibit, I requested
14 it. And that provided me with a definitive record of
15 what Monsanto did in response to Dr. Parry's report,
16 according to Dr. Farmer, the senior toxicologist that
17 oversaw that area of work.

18 **BY MR. WISNER:**

19 **Q.** And I guess the bottom-line question is: Did
20 Monsanto do all of the recommendations that Dr. Parry
21 made?

22 **A.** No, they did not.

23 **Q.** And did you tabulate how many tests it would
24 have taken to fulfill those recommendations?

25 **A.** I did.

1 **MR. BROWN:** Objection. Relevance.

2 **THE COURT:** Sustained.

3 **MR. WISNER:** Well, Your Honor, permission to
4 publish the chart?

5 **MR. BROWN:** Objection, no foundation.

6 **THE COURT:** It's a demonstrative.

7 **MR. BROWN:** As to this witness?

8 **THE COURT:** I understand he prepared this.

9 Did Dr. Benbrook prepare this chart?

10 **MR. WISNER:** Yes.

11 **MR. BROWN:** He prepared this?

12 **MR. WISNER:** Yes. I mean he just testified.

13 **THE COURT:** It's a demonstrative. Go ahead,
14 you may.

15 **MR. WISNER:** Okay. It just occurred to me,
16 let's make sure we're looking at the same one. I'm
17 looking at 3092. It's not 3093. Maybe that's the
18 confusion.

19 **MR. EVANS:** Yeah.

20 **MR. WISNER:** It's one page away.

21 **BY MR. WISNER:**

22 **Q.** Is that -- you're looking at 3093; right?

23 **A.** Yes, sir.

24 **Q.** Sorry, I think there was a miscommunication.

25 **A.** Well, no, I'm looking at 3092. It's the table

1 that I prepared.

2 Q. Okay. So 3092 is the exhibit. Is that the
3 table you prepared?

4 A. Yes, sir.

5 MR. WISNER: All right. Permission to publish
6 that, Your Honor?

7 THE COURT: I have a question I think I need
8 to ask you at sidebar.

9 MR. WISNER: Sure.

10 (Sidebar held but not reported.)

11 MR. WISNER: May I proceed, Your Honor?

12 THE COURT: Yeah.

13 BY MR. WISNER:

14 Q. So, Doctor, let's keep it simple. Did
15 Monsanto conduct the studies -- or all of the studies
16 that Dr. Parry recommended?

17 A. No.

18 Q. Approximately what percentage of the studies
19 that he recommended did they actually do?

20 MR. BROWN: Objection. Relevance.

21 THE COURT: Overruled. He can answer.

22 THE WITNESS: Less than half.

23 BY MR. WISNER:

24 Q. All right. There was -- well, let me ask you
25 something. You're familiar with regulatory obligations;

1 right?

2 A. Yes, sir.

3 Q. And we have this report here. And if you look
4 at it, it's Exhibit 38 in your binder and we were just
5 showing it, that was published in -- well, it was
6 submitted -- do you know about when this was submitted,
7 sir?

8 A. In the second half of 1999.

9 Q. And if you actually look at Exhibit 37, this
10 is the one before, this is also in evidence, this is the
11 original report by Dr. Parry; is that right?

12 A. Correct.

13 Q. And if we go to the second page, you see the
14 cover letter from him right here?

15 A. Yes.

16 Q. Under EPA regulations, was Monsanto required
17 to disclose these reports to the EPA?

18 A. Yes.

19 Q. Why?

20 **MR. BROWN:** Objection. Relevance.

21 **THE COURT:** Overruled. He can answer.

22 **THE WITNESS:** There's a provision in FIFRA,
23 the statute governing pesticide regulation,
24 6(a)(2)/(b), it's called the adverse effects
25 reporting requirement. And it places on the registrant

1 the responsibility to provide to the agency, after the
2 agency has approved the pesticide, has looked at the
3 studies, granted the labels, approved the tolerances, it
4 requires the registrant, if they come into possession of
5 any information that might shed new light on the risks
6 associated with using the pesticide -- a poisoning
7 episode, information they get from their manufacturing
8 plant, a study that they're running where they get a
9 preliminary report -- if any of this information
10 suggests a new or higher risk than what has already been
11 submitted to the agency, the registrant is bound by law
12 to submit that information to the EPA within a specified
13 time period. And that's what this 6(a)(2)/(b)
14 requires.

15 **BY MR. WISNER:**

16 Q. And if we turn to, for example, on page 11 of
17 this document where it says right here:

18 The overall data provided by the four
19 publications provide evidence to support a
20 model that glyphosate is capable of
21 producing genotoxicity both in vivo and
22 in vitro by a mechanism based on
23 production of oxidative damage.

24 This kind of conclusion from an independent
25 expert that Monsanto hired, is that something that would

1 have been required to be disclosed?

2 A. Yes.

3 Q. All right. I want to talk to you about the
4 sort of use of glyphosate over time.

5 Sir, have you published about -- have you
6 published the rate or the amount through which
7 glyphosate is being used in the United States?

8 A. Yes, I have.

9 Q. And how many publications have you done on
10 this?

11 A. Two that have appeared in peer-reviewed
12 scientific journals.

13 Q. I understand as part of your analysis of it,
14 you actually prepared a chart sort of documenting the
15 usage of glyphosate in the United States?

16 A. Yes, I prepared a chart based on use data from
17 the Environmental Protection Agency.

18 Q. And I believe that chart is 3093; is that
19 right?

20 A. I suspect that's the correct number.

21 Q. Okay.

22 **MR. WISNER:** Your Honor, permission to
23 publish?

24 **THE COURT:** This is what the doctor was first
25 looking at?

1 **MR. WISNER:** That's right.

2 **MR. BROWN:** Your Honor, I'm just going to
3 interpose an objection. It's not relevant in the scope
4 of this witness's expertise.

5 **THE COURT:** Overruled.

6 **BY MR. WISNER:**

7 **Q.** All right. Doctor, let me get up it up on the
8 screen here.

9 (Exhibit published.)

10 **MR. WISNER:** Your Honor, permission for the
11 witness to just come down and walk us through what this
12 chart says?

13 **THE COURT:** Sure.

14 **THE WITNESS:** So periodically the EPA issued a
15 public report on the pounds of different pesticide
16 active ingredients applied by both by farmers and by
17 non-agriculture users. And they literally provided a
18 ranking from the most heavily applied pesticide in the
19 United States in a given year to the number 25.

20 What I've done in this chart is beginning --
21 this was the first year they issued this report in 1997.
22 Glyphosate was part of the report. It ranked 17 out of
23 the top 25 with 6 to 8 million pounds of glyphosate
24 active ingredient in the form of Roundup applied in the
25 United States by farmers. Which accounted for most of

1 the use.

2 The number one herbicide that year was a corn
3 herbicide -- the number one pesticide was a corn
4 herbicide called atrazine. See the rank here. This is
5 71 to 76 million pounds. In 1987, farmers planted
6 approximately 70 million acres of corn so it was about a
7 pound per acre of this most widely used corn herbicide
8 applied.

9 Now watch what happens over the years. So the
10 next report issued by the -- the years that I have the
11 data, these are the years EPA put the report out. So
12 six years later glyphosate had risen up to 11 with the
13 use approximately doubling.

14 So, you know, there were 10 more pesticides
15 used more wildly, but it was moving up in the rank.
16 Atrazine is still first. It jumps up to seventh. And
17 two years later -- EPA put out the report every two
18 years now for a number of years -- as you can see,
19 atrazine stays number one all the way to here, 2001.

20 And look at how the use of glyphosate jumps
21 from 25 to 30 million pounds, to 34 to 38, to 67 to 73.
22 That's in only two years the use doubled, making it by
23 1999 the second most heavily applied pesticide in the
24 United States by U.S. farmers. And it reached number
25 one and where 85 million to 90 million pounds of

1 glyphosate were applied.

2 And then if we can go to the other half --

3 **BY MR. WISNER:**

4 **Q.** Dr. Benbrook, before we move on from this time
5 period, this time period right here, '93 to 2001, is
6 that the same time period that the AHS was beginning to
7 collect data about usage of glyphosate?

8 **A.** As a matter of fact, it is, yes.

9 **Q.** Okay. So then we go down to the next part,
10 starting 2001. Walk us through this, sir.

11 **A.** So continuing with the periodic report that
12 EPA put out every two years through 2009. Then the last
13 one they put out came out in 2012. You'll see that the
14 growth of use of glyphosate was not over. 85 to
15 90 million, just two years later up to 128 million to
16 133 million. Two years later, now we're 147 million to
17 167 million.

18 So atrazine is still -- it's still the second
19 one. But by 2005, note there's twice as much glyphosate
20 applied as atrazine. So not only has it jumped to the
21 number one position --

22 **MR. BROWN:** Excuse me, Your Honor.

23 **THE WITNESS:** -- but now there's twice as
24 much --

25 **MR. BROWN:** Excuse me, Your Honor. This is

1 all argumentative.

2 **THE COURT:** Overruled. But just stick with
3 the numbers.

4 **THE WITNESS:** I'm almost done.

5 **THE COURT:** Just stick to the numbers.

6 **THE WITNESS:** So, again, continuing the data.
7 Glyphosate remains number one. By 2012, total
8 agriculture usage is in the range of 270 million pounds
9 to 290 million pounds, four times -- four times the
10 volume --

11 **MR. BROWN:** Excuse me.

12 **THE WITNESS:** -- of the number 2.

13 **MR. BROWN:** Excuse me. It's argumentative.

14 **THE COURT:** Sustained. Sustained.

15 **MR. WISNER:** Can I have a sidebar? I actually
16 don't understand the objection.

17 (Sidebar held but not reported.)

18 **MR. WISNER:** I'll continue, Your Honor.

19 **Q.** Okay. So, Doctor, fair to say that the use of
20 glyphosate has substantially increased since at least
21 1987?

22 **A.** Correct.

23 **Q.** And in your opinion, has this substantial
24 increase affected the ability of scientists to properly
25 measure exposure in epidemiological studies?

1 **MR. BROWN:** Calls for speculation.

2 Foundation.

3 **THE COURT:** Sustained.

4 **MR. WISNER:** I'm a bit fish out of water here,
5 Your Honor. I need some guidance from the Court, sorry.
6 Because I don't want to do something that I can't do.

7 **THE COURT:** Dr. Benbrook is not an
8 epidemiologist.

9 **MR. WISNER:** No, no, that's not the issue.
10 Okay. Well, I'll just keep going and see where it goes.

11 **Q.** Are you familiar with the Farm Family Exposure
12 Study?

13 **A.** Yes, sir.

14 **MR. WISNER:** Your Honor, am I allowed to
15 inquire about that?

16 **THE COURT:** You haven't inquired yet.

17 **MR. WISNER:** Okay.

18 **Q.** Have you reviewed the Farm Family Exposure
19 Study?

20 **A.** Yes, I have.

21 **Q.** Have you discussed it in your own
22 peer-reviewed published literature?

23 **A.** Yes.

24 **Q.** And I want to draw your attention to the
25 study. It's Exhibit 1582 in your binder. It's also up

1 on the screen, sir.

2 A. I've got it.

3 Q. Okay. And in this study -- you understand who
4 performed this study?

5 A. Yes, sir.

6 Q. Who was it?

7 A. The lead author was John Acquavella.

8 Q. And who was he with, sir?

9 A. He was a Monsanto Company scientist.

10 Q. All right. Is it your understanding that this
11 study was in fact paid for and conducted by Monsanto?

12 A. Yes, sir.

13 Q. Okay. Now if we go down to the discussion in
14 result section. It says right here:

15 The results of our analyses suggest
16 that modifying specific practices should
17 be effective in minimizing glyphosate
18 exposures for farmers, spouses, and their
19 children. For farmers, the use of rubber
20 gloves when mixing and loading pesticides
21 or when repairing equipment was associated
22 with measurably reduced urinary
23 concentrations.

24 Do you see that?

25 A. Yes.

1 **Q.** Sir, in your understanding of the EPA
2 regulations, finding that in fact you could reduce
3 exposure using gloves, does that trigger an obligation
4 of Monsanto to either amend the label or inform the EPA
5 about this finding?

6 **A.** It certainly wouldn't trigger a positive
7 requirement for EPA -- for Monsanto to change the label,
8 but it's clearly this study generated data that is
9 highly pertinent to the EPA's evaluation of mixer,
10 loader, and applicator exposures and would be taken into
11 account by the EPA in assessing whether the provisions
12 on the label are adequate.

13 For example, do they require wearing gloves.

14 **Q.** Now, remember earlier we were talking about
15 the 1986 guidance?

16 **A.** Yes.

17 **Q.** I'd like to go to that document. It's
18 Exhibit 830 in your binder. Is that a copy of the
19 document?

20 **A.** Yes, it is.

21 **Q.** All right. It's been shown previously to the
22 jury.

23 And this is that guidance document you were
24 discussing with the jury before?

25 **A.** Correct.

1 **Q.** Okay. And, you know, it occurred to me when
2 we were discussing whether or not Monsanto would have
3 been ordered to do another mouse study, I want to see
4 what it says here about that so you can explain what
5 that means.

6 It says here -- it says:

7 Therefore, in order to fully address
8 this question, the agency is requiring
9 that this study be repeated with a larger
10 number of animals in each test group so
11 that the statistical power of the study is
12 increased.

13 **A.** Yeah, that's what I described earlier.

14 **Q.** Okay. I want to understand something. How is
15 it possible that the agency could require it but it
16 never happened?

17 **MR. BROWN:** Calls for speculation.

18 **THE COURT:** Overruled.

19 **THE WITNESS:** The EPA in this registration
20 standard document and all other similar documents
21 applying to other pesticides make certain requirements
22 of the registrant to do new studies or clarify the
23 language on the label or impose new protective clothing
24 provisions to reduce exposures like wearing gloves.

25 And it assumes and in most cases it is correct

1 in assuming that the registrant will make those changes
2 in order to have no trouble getting its future labels
3 approved so that the pesticide can continue to be used
4 consistent with the provisions laid out in the
5 registration standard.

6 But sometimes the registrants choose not to do
7 what is -- what they are asked to do by EPA and sends
8 them a letter and challenges the substantive basis or
9 the justification for the request.

10 For example, Monsanto submitted a letter in
11 response to this registration standard document to EPA
12 laying out the reasons that it felt that a repeat mouse
13 study was not justified.

14 It also sent another communication addressing
15 a series of worker safety provisions in this document
16 that Monsanto was supposed to put on all Roundup labels.

17 **MR. BROWN:** Excuse me, Your Honor. The answer
18 is nonresponsive.

19 **THE COURT:** Starting with it "sent another
20 communication addressing a series of worker safety
21 provisions" will be stricken.

22 **THE WITNESS:** Okay, sorry.

23 **MR. WISNER:** We'll get to that in a second.

24 **Q.** I was just trying to make sure I understood
25 how --

1 **A.** I'm sorry. I did a -- may I finish answering
2 your question?

3 **Q.** Sure.

4 **MR. BROWN:** No, Your Honor.

5 **THE COURT:** Ask another question because I
6 struck the last portion of it.

7 **BY MR. WISNER:**

8 **Q.** Please finish answering my question as it
9 relates to the mouse study. Okay?

10 **A.** Right. If a company chooses not to do a study
11 requested in a document like this, the EPA has basically
12 two choices. It can initiate a cancellation action to
13 try to drive the pesticide off the market, which is a
14 long and arduous process, or it can just let it go.

15 **Q.** Now, you talked about requirements for
16 labeling; right?

17 **A.** I'm sorry, I didn't hear you.

18 **Q.** Briefly -- actually it was struck.

19 Let's go to page 32.

20 **A.** 32?

21 **Q.** Yeah. Using the bottom right number, not the
22 middle number.

23 And you see that point 4 at the very bottom?

24 **A.** Yes, sir.

25 **Q.** It says:

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The following worker safety rules
must appear on end-use products containing
glyphosate except for those labeled for
homeowner use only.

Do you see that?

A. Yes, sir.

Q. And then if we turn to the next page, there's
a bunch of language. Do you see that?

A. Yes.

Q. As, for example, wear goggles or face shield,
chemical-resistant gloves, chemical-resistant apron, and
chemical-resistant shoes, shoe coverings or boots.

Do you see that?

A. Yes.

Q. And it says wear the following protective
clothing during application. Do you see that?

A. Yes.

Q. What is the EPA doing -- saying in this
document?

A. It's saying that --

MR. BROWN: Objection. The document speaks
for itself. And it also exceeds the scope, Your Honor.

THE COURT: Overruled. He can answer that.

THE WITNESS: This is the language that the
EPA is requiring or directing Monsanto to add to all of

1 the labels for end-use products. And those are the
2 products that a farmer would buy or a homeowner of a
3 Roundup product.

4 So this is the language that was supposed to
5 appear on all of the labels.

6 **BY MR. WISNER:**

7 **Q.** Did that language ever make it onto the label?

8 **A.** No.

9 **Q.** Now are you familiar with something called
10 material safety data sheet?

11 **A.** Yes, sir.

12 **Q.** And have you reviewed the material safety data
13 sheet specifically for glyphosate or Roundup?

14 **A.** Well, actually several of them, yes.

15 **Q.** Are you familiar with Monsanto's material
16 safety data sheet?

17 **A.** I have reviewed that one too.

18 **Q.** What is Monsanto's material safety data sheet?

19 **MR. BROWN:** Objection, relevance. Exceeds the
20 scope in terms of regulatory.

21 **THE COURT:** Let me ask this question. Is it
22 required in the regulatory process to submit safety data
23 sheets?

24 **MR. WISNER:** Yeah, I'll lay the foundation.

25 **THE COURT:** Lay the foundation first.

1 **BY MR. WISNER:**

2 **Q.** Doctor, what is a material safety data sheet?

3 **A.** It is a summary of the properties of a
4 chemical, any risks that are associated if you spill
5 some on you or get some in your eyes, directions for
6 what should be done in the case of an accidental spill
7 or exposure, numbers to call for medical assistance in
8 an emergency, and information useful for the safe
9 storage of the chemical, what temperatures it can be
10 stored at.

11 So it's best practices for handling the
12 chemical in a safe way.

13 **Q.** Now, is there a regulatory structure that
14 governs the creation of an MSDS?

15 **A.** They're -- different agencies use them for
16 different purposes. OSHA is obviously interested in
17 what they -- what is in a material safety data sheet
18 because they are primary documents in occupational
19 safety and health programs at chemical plants or
20 formulating plants or anywhere where chemicals are
21 handled.

22 **Q.** And does -- well, Monsanto manufactures
23 glyphosate. Do they have a material safety data sheet
24 for their own employees?

25 **A.** Yes.

1 **Q.** Have you reviewed that?

2 **A.** I have.

3 **Q.** Turn to Exhibit 3094. Is that a copy of the
4 Monsanto materials safety data sheet from 1995?

5 **A.** 30, what was it, 94?

6 **Q.** 3094, yes.

7 **A.** The last one. Ah, yes.

8 **MR. WISNER:** Permission to publish,
9 Your Honor?

10 **MR. BROWN:** Foundation.

11 **THE COURT:** Lack of foundation?

12 Is this related to the product that was used
13 by plaintiffs?

14 **MR. WISNER:** Yes.

15 **THE COURT:** Okay. Overruled.

16 **BY MR. WISNER:**

17 **Q.** So we're looking at the material safety data
18 sheet. And if you see up here, lawn and garden
19 products. Do you see that?

20 **A.** Correct.

21 **Q.** And you can see up here, this is the Monsanto
22 lawn and garden products specific MSDS; right?

23 **A.** Correct.

24 **Q.** And if we go down here to the handling and
25 storage -- let me find that section.

1 Okay. There's a section here that says
2 exposure control personal protection. Do you see that?

3 **A.** Yes.

4 **Q.** And, for example, here under "Skin
5 Protection," it says:

6 Wear chemical-resistant gloves. If
7 there's a significant potential for
8 contact, wear face shield, wear
9 chemical-resistant clothing/footwear.

10 Do you see that?

11 **A.** Correct.

12 **Q.** And this is what Monsanto is telling their own
13 employees about how to handle lawn and garden products
14 involving Roundup?

15 **A.** Correct.

16 **Q.** Do they give that same instruction to regular
17 consumers?

18 **MR. BROWN:** Objection, Your Honor. Exceeds
19 the scope.

20 **THE COURT:** Overruled. He can answer.

21 **THE WITNESS:** No, they didn't put these
22 provisions on the label.

23 **BY MR. WISNER:**

24 **Q.** All right. The last thing I want to talk to
25 you about -- well, there's two last things I want to

1 talk to you about, but they're pretty quick.

2 I understand you recently published an article
3 about POEA; is that correct?

4 **A.** Correct.

5 **Q.** Tell the jury a little bit about -- don't tell
6 me what you said in your article, but describe how you
7 went about preparing that article.

8 **A.** I wrote this article with two scientists at
9 King's College in London who are well-known experts in
10 pesticide toxicology. They've done a lot of research
11 over many years on the formulated products which
12 includes the active ingredient glyphosate plus the
13 surfactants, which the U.S. EPA regards the surfactants
14 as inert ingredients.

15 And what we did in this paper is we tried to
16 help the scientific community that's doing research on
17 glyphosate-based herbicides like Roundup that's got a
18 certain amount of glyphosate in it and a certain amount
19 of surfactant, to help scientists understand exactly
20 what the test substance they were working with.

21 Because the identity and the concentration of
22 the surfactants are classified as confidential business
23 information and are not disclosed on the label and are
24 not available anywhere publicly.

25 So scientists will purchase Roundup Pro from a

1 retail dealer, and they'll know the percentage of
2 glyphosate in it, but they won't know what the
3 surfactants are.

4 The only thing that the label will disclose is
5 the percent of the product by weight, that's the
6 surfactant. And what a large body of science has shown
7 over the last 20 years is that the surfactants in
8 Roundup --

9 **MR. BROWN:** Excuse me, I'm going to object.
10 This is beyond the scope.

11 **THE COURT:** Does this relate to registration?

12 **MR. WISNER:** I'm going to get there, but I --

13 **MR. BROWN:** No, Your Honor.

14 **MR. WISNER:** Let me ask the next question.

15 **THE COURT:** Let's get to the relationship with
16 that to registration.

17 **MR. WISNER:** Okay.

18 **Q.** The jury has actually already seen your
19 article with Dr. Sawyer. They've seen what you said
20 about POEAs.

21 **A.** Okay.

22 **Q.** So we actually don't need to get into that
23 fact.

24 What I want to ask you about is what is --
25 well, let me start off with the first question.

1 Under the regulations, is Monsanto required to
2 do a long-term animal cancer study on POEA?

3 A. No.

4 Q. Are they required to do -- well, okay. And
5 the other question I have for you is: Has the POEA
6 formulation evolved since Roundup first came on the
7 market in the '70s to what it is today?

8 MR. BROWN: Objection, relevance.

9 THE COURT: Overruled. You can answer.

10 THE WITNESS: Yes, it has.

11 BY MR. WISNER:

12 Q. And as they changed the formulations of this
13 POEA surfactant, has Monsanto been obligated to do
14 cancer studies on each one of those new formulations as
15 it comes out?

16 A. No, they have not.

17 Q. How do we know they're safe?

18 MR. BROWN: Objection. Calls for speculation.
19 It's argumentative.

20 THE COURT: Sustained.

21 BY MR. WISNER:

22 Q. Let me just be clear. The type of Roundup
23 that existed in 1982, did that use the original POEA
24 formulation?

25 A. The percentage of surfactant and the exact mix

1 of POEA molecules in the primary Roundup products on the
2 market in 1982 differed a little bit from the products
3 initially registered and sold in 1974, but not
4 substantially.

5 Q. And that type of POEA that was around in 1982,
6 is that type of POEA allowed to be used in Europe?

7 A. Not anymore.

8 Q. And is that based on some of the research that
9 you reported on in your article?

10 MR. BROWN: Objection. Relevance.

11 THE COURT: Sustained.

12 BY MR. WISNER:

13 Q. Let me clarify the question. I think it was a
14 confusing question.

15 The studies that you document and discuss in
16 your article that the jury has already seen, are those
17 the studies that were referenced when it was banned in
18 Europe?

19 A. Correct.

20 MR. BROWN: Objection. The question is --

21 (Interruption.)

22 THE COURT: Just wait a moment.

23 You interposed an objection to the question.

24 MR. BROWN: I'll repeat it, Your Honor.

25 THE COURT: I'm looking at it. I'm sustaining

1 the objection.

2 **BY MR. WISNER:**

3 Q. All right. Doctor, in Europe, the surfactants
4 that are used, they're not POEA; is that right?

5 **MR. BROWN:** Objection. Relevance.

6 **THE COURT:** How does this relate to
7 registration here in the United States of the Monsanto
8 products?

9 **MR. WISNER:** It's a foundational question to
10 the next question.

11 **THE COURT:** Okay. Go ahead. I'll just
12 overrule the objection subject to the next question.

13 **THE WITNESS:** The principal surfactants used
14 in Monsanto brand Roundup products in Europe are
15 different from the ones now incorporated in Roundup in
16 the United States.

17 **BY MR. WISNER:**

18 Q. And has Monsanto, to the best of your
19 knowledge, attempted to replace those surfactants used
20 in Europe with the current ones being used in the U.S.?

21 A. Could you ask that again?

22 Q. Sure. From a regulatory respect -- let me ask
23 you a simple question.

24 From a regulatory perspective, would there be
25 anything stopping Monsanto from using the less toxic

1 stuff in Europe here in the U.S.?

2 A. No.

3 Q. Okay. The last thing I want to ask you about,
4 sir, and actually we'll just do this orally.

5 I want to talk about obligations that Monsanto
6 had, okay, under the EPA regulations.

7 If Monsanto knew that Roundup was genotoxic to
8 humans, is that something that they would have been
9 required to warn about?

10 A. They would be required to submit the
11 underlying basis for that insight or conclusion, whether
12 it was a study that they commissioned or a report from a
13 recognized expert like Dr. Parry.

14 Q. Sure, sir. I'm asking a very simple question.
15 I'm talking about obligations to warn. If Monsanto
16 knows its product can be genotoxic in humans, do they
17 have to warn?

18 A. There's no obligation in the FIFRA statute to
19 do that.

20 Q. What about if they know it causes tumors?

21 A. Again, there's no requirement that they put
22 that on the label of their product. It does have to go
23 on the -- on an OSHA information sheet that's governed
24 by regulations under the OSHA statute.

25 Q. Sir, I think we're talking past each other

1 here. Under FIFRA, if Monsanto knew that their product
2 could cause cancer, do they have to warn people?

3 **MR. BROWN:** Your Honor, I'm going to object.
4 Calls for a legal opinion.

5 **THE COURT:** Reframe the question.

6 **MR. WISNER:** Sure.

7 **Q.** Under the regulatory framework, if Monsanto
8 knows that their product can cause cancer, do they have
9 an obligation under the regulatory standards to warn?

10 **MR. BROWN:** Calls for a legal conclusion.

11 **THE WITNESS:** They have a --

12 **THE COURT:** Overruled. He can answer.

13 **THE WITNESS:** They have a regulatory
14 obligation to provide the basis for that insight to the
15 EPA.

16 **BY MR. WISNER:**

17 **Q.** Does the same thing apply to genotoxicity,
18 oncogenicity, oxidative stress?

19 **A.** Yes, sir.

20 **Q.** Okay. And to the best of your knowledge,
21 sitting here today, has any label related to lawn and
22 garden products ever warned about any of that for
23 Roundup?

24 **A.** Not that I'm aware of.

25 **MR. WISNER:** Thank you.

1 No further questions, Your Honor.

2 **THE COURT:** Do you need a break or want to go
3 straight into cross-examination?

4 **MR. BROWN:** I'm good if we're good.

5 **THE COURT:** Okay. We'll probably take a break
6 in the next 20 minutes.

7 **CROSS-EXAMINATION**

8 **BY MR. BROWN:**

9 **Q.** Since we're talking about labeling
10 obligations, as I understand it, the EPA -- we've never
11 met. I'm Gene Brown, by the way.

12 **A.** You're Mr. Brown. I'm Dr. Benbrook.

13 **Q.** Okay. Does the EPA approve labeling?

14 **A.** Yes.

15 **Q.** And you can't put the product on the shelf
16 without the EPA-approved label; correct?

17 **A.** Well, not legally.

18 **Q.** Right. And so the EPA registers the product;
19 correct?

20 **A.** Yes.

21 **Q.** And it approves the label?

22 **A.** That's a part of the process, yes.

23 **Q.** Now, Dr. Benbrook, you were asked some
24 questions about the work that you did while you were an
25 adjunct professor at Washington State University;

1 correct?

2 A. Yes.

3 Q. And what is an adjunct professor?

4 A. I had a position as an adjunct faculty member
5 for three or four years prior to receiving an
6 appointment as a research professor which was
7 100 percent time paid position.

8 As an adjunct faculty member, there's no
9 compensation or no teaching role typically.

10 So I had two different positions at WSU with
11 the adjunct position preceding the three years that I
12 served as a research professor.

13 Q. Okay. And when you were working at Washington
14 State University, did you have an office there?

15 A. No, I did not.

16 Q. All right. So you were -- and Washington
17 State is in Pullman; right?

18 A. Right.

19 Q. So how often did you go to campus?

20 A. About three or four times a year. I lived
21 about 90 miles south of Pullman.

22 Q. And when you were at Washington State, were
23 you actually working for the Center for Sustainability?

24 A. That's not exactly the title of it. But,
25 yeah, my program was affiliated with a center on natural

1 resources and environment or something. I could refresh
2 my memory by looking at my résumé to get the exact name
3 of the center. But, yes, I was affiliated with that
4 center.

5 Q. And then you told us that you were working for
6 the National Research Council 1984 to 1990; is that
7 correct?

8 A. I spoke about that earlier. That was an
9 earlier part of my career, yes.

10 Q. Okay. And that was in 1984 to 1990.

11 And you said that was an independent body that
12 offered advice to the government.

13 A. Correct.

14 Q. And you left there in 1990.

15 A. Yes.

16 Q. Okay. And why did you leave that job?

17 A. It was time to move on. We had built a very
18 effective program. And I ran what was called the board
19 on agriculture. And the National Academy of Sciences
20 wanted to see the board move in some different
21 directions. And I agreed that I wasn't the right person
22 to run it and so I moved on.

23 Q. Okay. And who was the head of that
24 organization at the time that you left?

25 A. A gentleman named Frank Press.

1 Q. And you and Mr. Press had some disagreements?

2 A. I don't know if I would characterize them
3 exactly that way. But he was the president of the
4 Academy at the time, and he and I reached an agreement
5 that it would be best if I moved on.

6 Q. Did he ask you to leave?

7 A. Yes.

8 Q. Sorry about that.

9 And you have been working at Benbrook
10 Consulting Services since 1990; correct?

11 A. Yes.

12 Q. And that's your primary work; is that correct?

13 A. It has been over the period of time, although
14 I had the three -- the three years that I was a research
15 faculty member at WSU, was in there. And I also served
16 for about six years as the chief scientist of a
17 nonprofit organization called the Organic Center.

18 Q. And the Organic Center was an advocacy group;
19 is that correct?

20 A. It was a research science group.

21 Q. And you testify for plaintiffs in litigated
22 matters; is that correct?

23 A. Over the years, yes, I have done other expert
24 witness work.

25 Q. And do you also testify for defendants, folks

1 who are sitting on my side of the table?

2 A. No. Most -- I think all the cases I've worked
3 with the plaintiffs' attorneys.

4 Q. And, again, as I understand it, you are not a
5 medical doctor?

6 A. Correct.

7 Q. You're, in fact, not an expert in physical
8 sciences; is that correct?

9 A. I have no advanced degree in any of the
10 physical sciences.

11 Q. You are not a toxicologist. You don't hold
12 yourself out as a toxicologist.

13 A. Correct.

14 Q. You're not an epidemiologist.

15 A. Correct.

16 Q. You're not an industrial hygienist.

17 A. Are we going to go through them all?

18 Q. Yes, we are.

19 A. No, I'm not.

20 Q. You're not a pathologist.

21 A. Correct.

22 Q. You have no formal training or degree in
23 exposure assessments.

24 A. That's correct.

25 Q. You're not a lawyer.

1 **A.** That is true.

2 **Q.** You're not a geneticist.

3 **A.** Correct.

4 **Q.** And so what you do, Dr. Benbrook, is, for
5 purposes of this case is, you've read literature;
6 correct?

7 **A.** I've read a significant body of literature,
8 yes.

9 **Q.** All right. And you draw opinions from your
10 review of that literature.

11 **A.** Among other sources of information, yes.

12 **Q.** Right. You consider information, you read
13 literature. And then you -- that helps refine your
14 opinions; correct?

15 **A.** Yes.

16 **Q.** Okay. And then you come into court and you
17 tell people about what you read and how it -- and what
18 you relied on to render your opinions; correct?

19 **A.** In effect, yes.

20 **Q.** Now the material that you have reviewed to
21 render your opinions in this case, is that information
22 available to us?

23 **A.** Yes.

24 **Q.** And we can get it just -- I would assume and
25 I'm not going to go there. I was going to talk about

1 doing research on it, but I'm not going to talk about
2 that.

3 Is it available in libraries?

4 **A.** Well, certainly the entire discovery record
5 would not be available in a library.

6 **Q.** Well, not the entirety of it, but you can
7 certainly find EPA publications.

8 **A.** Of the documents that I reviewed specifically
9 for this case, the ones that would be publicly available
10 were the peer-reviewed published scientific studies and
11 the primary EPA reports and the EPA memos that have gone
12 through the EPA clearance process to be made publicly
13 available. And those categor -- those groups of
14 documents would be perhaps a quarter of the documents
15 that I reviewed in preparation for my testimony today.

16 **Q.** All right. Have you reviewed any documents in
17 preparation for your testimony today that reflect that
18 glyphosate or Roundup are not registered by the EPA?

19 **A.** Could you ask that question --

20 **Q.** I'll make it easier. Is Roundup registered by
21 the EPA?

22 **MR. WISNER:** Objection. Asked and answered.

23 **THE COURT:** Overruled. He can answer.

24 **MR. WISNER:** Okay.

25 **THE WITNESS:** Yes, Roundup is registered by

1 the EPA.

2 **BY MR. BROWN:**

3 Q. And you said something about glyphosate being
4 banned in Europe. Do you recall that testimony?

5 A. Certain formulations of Roundup herbicide in
6 Europe are no longer marketed because European
7 regulators instructed Monsanto to alter the surfactants
8 in the formulation.

9 Q. All right. And has EPA requested that
10 Monsanto alter the formulas here?

11 A. No, they have not.

12 Q. Now you talked about -- earlier in your
13 testimony you talked about Dr. Franz. Do you recall
14 that?

15 A. Dr. who?

16 Q. Franz.

17 A. Yes.

18 Q. All right. And how glyphosate was kind of
19 just discovered.

20 A. The herbicidal activity of glyphosate was
21 discovered.

22 Q. Okay. And where did you learn that
23 information?

24 A. Oh, many different places. The history of
25 glyphosate as a herbicide has been covered in

1 innumerable papers and reports. There's an excellent
2 detailed timeline on the Monsanto website about the
3 history of glyphosate that I've read many times over the
4 years.

5 You know, glyphosate is the most widely used
6 herbicide in the world. So there's a lot of information
7 about it and a lot of people interested in it.

8 **Q.** There's a lot of information, there's been a
9 lot of studies about glyphosate; is that correct?

10 **A.** Well, certainly several, yes.

11 **Q.** You also talked to us about some work that was
12 done at a lab called IBT?

13 **A.** Correct.

14 **Q.** And what was IBT?

15 **A.** It was a private commercial testing laboratory
16 established in 1950 in Northbrook, Illinois that
17 provided testing services for the pharmaceutical
18 industry, the pesticide industry, the oil and gas
19 industry, to generate the data that government agencies
20 were starting to ask for. Because at that time we --
21 scientists had become concerned about the impact of
22 chemical exposures on certain diseases.

23 **Q.** Okay. And this is an independent lab?

24 **A.** Yes, it's privately owned.

25 **Q.** All right. And at the time that this

1 difficulty with IBT was discovered, I think you told us,
2 and I would like for you to remind me, how many separate
3 clients or companies were using IBT's services?

4 A. I don't know the exact number, but it would be
5 several dozen.

6 Q. All right. So this wasn't just Monsanto that
7 IBT had a problem?

8 A. Oh, certainly not.

9 Q. Okay. And as a matter of fact, did any
10 governmental agencies use the services of IBT?

11 A. I don't know if they did or not.

12 Q. But, again, this wasn't just a Monsanto
13 problem.

14 A. Oh, yes, most definitely.

15 Q. And as a result of the difficulties with IBT,
16 the companies were requested to redo studies; correct?

17 A. Either they realized they had invalid data and
18 they started the repeat studies themselves, or they
19 waited until they were asked to repeat them.

20 Q. All right. And that would include Monsanto?

21 A. Correct.

22 Q. Now, you were asked some questions about
23 Dr. Parry and recommendations. Do you recall that?

24 A. I do.

25 Q. All right. And you said that Dr. Parry had

1 been retained by Monsanto; correct?

2 **A.** That is correct, yes.

3 **Q.** All right. And Dr. Parry was an independent
4 investigator?

5 **A.** He was a university professor in the UK.

6 **Q.** All right. And was there any -- are you aware
7 of any obligation being imposed by anyone that Monsanto
8 follow all the recommendations that were handed down by
9 Dr. Parry?

10 **A.** I know of none.

11 **Q.** As a matter of fact, Monsanto had retained
12 Dr. Parry and presumably paid him; correct?

13 **A.** They did.

14 **Q.** Okay. And then you were asked a question
15 about reregistration. And then you were asked a
16 question about whether or not -- and I'm paraphrasing --
17 but whether or not the EPA could remove the registration
18 for companies; correct?

19 **A.** Yes, I addressed that issue.

20 **Q.** Okay. And they do have that ability; correct?

21 **A.** They can initiate the process, yes.

22 **Q.** Okay. And it would be fair to say that they
23 would initiate that process if they saw a problem that
24 was significant enough and posed a significant enough
25 hazard to the citizens of the United States that they

1 would go ahead and initiate it in order to provide
2 protection; correct?

3 **MR. WISNER:** Objection. Speculation.

4 **THE COURT:** Sustained.

5 **BY MR. BROWN:**

6 **Q.** But no such action has been taken against
7 Monsanto, glyphosate or Roundup; correct?

8 **A.** No action to cancel the registrations, that's
9 correct.

10 **MR. BROWN:** Your Honor, if I could consult
11 with my colleagues, if you'd like to take a break.

12 **THE COURT:** Yes, sure. We can take a break
13 now. 15 minutes and we'll resume at 25 after the hour.

14 (Recess taken at 2:12 p.m.)

15 (Proceedings resumed in open court in the
16 presence of the jury at 2:27 p.m.)

17 **THE COURT:** Mr. Brown.

18 **MR. BROWN:** Thank you, Your Honor.

19 **Q.** Okay. Dr. Benbrook, just a few more
20 questions.

21 **A.** Okay.

22 **Q.** You were talking about earlier EPA
23 classifications. Do you recall that?

24 **A.** Classifications of what?

25 **Q.** Of, you know, for possible carcinogens,

1 probable carcinogens.

2 A. Okay. I understand.

3 Q. Okay. And just so -- I made a note here of
4 the dates you're talking about. Is it true that in
5 1985, the EPA classified glyphosate as a class C
6 possible human carcinogen?

7 A. Correct.

8 Q. And then in 1986 it was reclassified as a
9 group or class D; is that correct?

10 A. No, that's not correct.

11 Q. Okay. When did that happen?

12 A. 1991.

13 Q. 1991. And in 1991, what was the group or
14 classification?

15 A. It would be not likely to pose oncogenic risk.

16 Q. Okay. Evidence of noncarcinogenicity for
17 humans?

18 A. Correct.

19 Q. Okay. And that was in 1991.

20 And is that the classification that exists
21 now?

22 A. Yes, it is.

23 Q. And we've been talking about the EPA and tests
24 and Monsanto and tests for a couple weeks now. But
25 these tests and examinations of the various chemicals

1 and substances are done by lots of different people;
2 correct? Not just Monsanto and the EPA.

3 **A.** Well, all registered pesticides have to
4 fulfill all the data requirements. So all the different
5 pesticides companies have to do it. Are you referring
6 to like the data requirements for drugs and other
7 chemicals? Or I don't quite understand your question.

8 **Q.** I'm just talking about regulatory agencies,
9 governmental agencies, they're doing different tests on
10 different substances for purposes of regulation,
11 et cetera.

12 **A.** Government agencies do very few tests
13 themselves. They tend to require the private companies
14 that are marketing chemicals to do the testing.

15 **Q.** Now, did you have an opportunity to review
16 documentation indicating in or about May, May 1st, 2013,
17 the EPA released a pesticide residue tolerance approval
18 for glyphosate?

19 **A.** I'd be glad to look at the *Federal Register*
20 notice for whatever specific tolerance action there was.
21 I mean, there are several of them per year. So I don't
22 know exactly which one you're referring to.

23 **Q.** You are familiar with the September 12, 2016,
24 EPA draft preliminary risk assessment?

25 **A.** Yes.

1 Q. And do you recall the conclusion of that
2 assessment?

3 A. Yes.

4 Q. What is that?

5 A. That in terms of oncogenicity, I assume that's
6 what your question is in reference to?

7 Q. Yes.

8 A. That under current and expected levels of
9 dietary exposure for the general public, exposure to
10 glyphosate does not pose a significant cancer risk.

11 Q. And, again, the EPA, we know about EFSA and
12 ECHA, but the EPA is the entity that regulates the
13 industry here in the United States; correct?

14 A. Yes.

15 Q. We talked a little bit about rodent studies;
16 do you recall that?

17 A. Yes.

18 Q. And, again, you don't conduct animal assay --
19 bioassays?

20 A. That's correct, I do not.

21 Q. Okay. And are you familiar with Dr. Jameson?

22 A. I know that he's an expert in this litigation.
23 I've never met him.

24 Q. And are you aware that a mice study was done
25 where five pathologists were asked to review pathology

1 in a blind review to determine the existence or not of
2 tumors?

3 A. I have no idea what you're talking about.

4 Q. Finally, in terms of the EPA, because we
5 talked a lot about the EPA today, when they review a
6 substance for registration, the review is done and
7 assessed by the staff there at the EPA?

8 A. Correct.

9 Q. And the staff, the staffs are made up of
10 epidemiologists, toxicologists, a whole series of
11 scientists?

12 A. Correct. In each of the branches of EPA,
13 depending upon the aspect of pesticide risk assessment
14 that the branch is responsible for, it hires scientists
15 with the requisite technical skills and training.

16 Q. All right. And you don't have any reason to
17 doubt the technical skill, expertise, or training of any
18 of those scientists, do you?

19 A. That's an awfully broad question. I've not
20 done an analysis of the résumés of all EPA staff. So I
21 really have no basis to answer that question.

22 Q. But you have no reason to doubt that they're
23 competent to do what they've been hired to do?

24 A. I think like in any organization, there's a
25 range of skills that are -- that different people bring

1 to the job. You know, I'm not going to -- I'm not going
2 to say that universally every scientist that works for
3 the EPA is at the cutting edge of their field and has
4 done, you know, top quality work. I'm not prepared to
5 say that.

6 Q. But at the same time, you cannot -- you can't
7 say that they are not; correct?

8 A. That's also correct. I'm not rendering a
9 judgment one way or another.

10 MR. BROWN: Thank you.

11 THE COURT: Any questions on redirect?

12 MR. WISNER: Yes, Your Honor. Very few.

13 REDIRECT EXAMINATION

14 BY MR. WISNER:

15 Q. On cross-examination, Mr. Brown asked you a
16 question about the documents that you reviewed as part
17 of your analysis in this case.

18 A. Correct.

19 Q. You said something like 25 percent of them are
20 public documents; is that right?

21 A. It's a rough estimate, yes.

22 Q. What are the other 75 percent?

23 A. They're internal documents, recording
24 communications between Monsanto scientists and managers,
25 and Monsanto PowerPoints and training PowerPoints,

1 marketing materials, descriptions of Monsanto's
2 stewardship pledge and commitment to safety, and all
3 other sorts of information that Monsanto provided in
4 response to the discovery requests in this litigation.

5 Q. And to be clear, sir, those 75 percent of
6 documents that you looked at, are those available to
7 EPA?

8 A. Most of them would not be, no.

9 Q. Okay. There was a question about IBT; do you
10 recall that?

11 A. I recall that there was a question, but I
12 don't remember exactly what it was.

13 Q. Sure.

14 A. There've been a few.

15 Q. There was a question specifically about
16 whether it was related to Monsanto or not; right?

17 A. Correct.

18 Q. Okay. And I just want to clarify something.
19 One of the scientists that was implicated in the IBT
20 scandal was Dr. Paul Wright; right?

21 A. That's correct.

22 Q. And Paul Wright, before he worked at --

23 MR. BROWN: Excuse me, Your Honor. Exceeds
24 the scope.

25 THE COURT: Sustained. The question was, was

1 Monsanto the only company.

2 **MR. WISNER:** No, Your Honor, there was a
3 question specifically about it being an independent lab.
4 That was the question.

5 **THE COURT:** The question was: Was IBT an
6 independent lab? And the answer was yes.

7 **MR. WISNER:** Exactly, and I'm probing that
8 point.

9 **THE COURT:** Okay. Be careful.

10 **MR. WISNER:** Sure.

11 **Q.** Dr. Paul Wright, before he went to IBT and was
12 involved in this fraud, he actually worked at Monsanto?

13 **A.** That's correct.

14 **MR. BROWN:** Objection. Argumentative.

15 **THE COURT:** Sustained.

16 **MR. BROWN:** Move to strike.

17 **THE COURT:** Stricken. MIL.

18 **MR. WISNER:** Your Honor, this --

19 **THE COURT:** MIL.

20 **MR. WISNER:** That's fine. Yes, Your Honor
21 we'll talk about it later. I don't mean to violate any
22 MIL. I do believe it came in already. That's fine.

23 **Q.** Doctor, there were questions about labeling.
24 Do you recall that?

25 **A.** Yes.

1 **Q.** Let me clarify something. Is Monsanto
2 prohibited from proposing amendments to the label?

3 **A.** No, they're not.

4 **Q.** Under the regulations, is Monsanto prevented
5 from warning consumers that it's genotoxic or oncogenic?

6 **A.** No, they're not.

7 **Q.** Is Monsanto prevented from conducting animal
8 tests, for example, the ones that Dr. Parry recommended?

9 **MR. BROWN:** Objection, Your Honor. This
10 exceeds the scope.

11 **THE COURT:** I'm going to allow the answer to
12 that question, but we're moving afield from the cross.

13 **THE WITNESS:** No, they're not prevented.

14 **MR. WISNER:** Fair enough. Your Honor, he
15 asked a question about whether or not they're required
16 to do it. I'm just asking if they were prevented.

17 **Q.** Okay. Finally, Doctor, I guess that was close
18 to my last question, and that is simply put: Based on
19 your review of the record, has Monsanto ever made a
20 request to amend the Monsanto Roundup label to warn
21 about cancer?

22 **MR. BROWN:** Calls for speculation. Lacks
23 foundation.

24 **THE COURT:** Lacks foundation regarding "ever
25 made request." Does he know that?

1 **MR. WISNER:** Fair enough.

2 **Q.** Have you reviewed all the regulatory
3 submissions from Monsanto to the EPA?

4 **MR. BROWN:** Calls for speculation.

5 **THE COURT:** Overruled. He can answer the
6 question.

7 **THE WITNESS:** Since 1974, Monsanto has --

8 **BY MR. WISNER:**

9 **Q.** Answer my question first. Have you reviewed
10 the records, what they sent to the EPA?

11 **A.** I have reviewed a great number of records, but
12 I have certainly not reviewed every document in that
13 record.

14 **Q.** Okay. And in the records that you have
15 reviewed, spanning from 1974 to the present, has
16 Monsanto, in those records that you've reviewed, ever
17 proposed amending the Roundup label to warn about
18 cancer?

19 **A.** No.

20 **MR. WISNER:** No further questions, Your Honor.

21 **THE COURT:** Any more questions?

22 **MR. BROWN:** No, Your Honor.

23 **THE COURT:** Okay.

24 **MR. WISNER:** Thank you, Dr. Benbrook.

25 **THE COURT:** Thank you, Dr. Benbrook.

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THE WITNESS: Thank you, Your Honor.

Do I get to keep my binder?

MR. WISNER: I'll take care of it, sir.

THE COURT: Take anything that you brought,
but leave everything else.

THE WITNESS: Okay.

(Witness excused.)

MR. WISNER: Okay. Your Honor, before we move
on to the next witness, we're going to read two
admissions into the record.

Admission number 6:

Admit that Monsanto has never
conducted any animal carcinogenicity study
of any of the glyphosate-containing
formulations sold in the United States.

Response: Monsanto admits that it
has not conducted a long-term animal
carcinogenicity study on any formulated
pesticide products.

Admission number 7: Admit that
Monsanto is not precluded by any
applicable law, regulation, or ordinance
from conducting a long-term animal
carcinogenicity study on a glyphosate
formulation.

1 Response: Monsanto admits that it is
2 not precluded by any applicable law,
3 regulation, or ordinance from conducting a
4 long-term animal carcinogenicity study on
5 a glyphosate formulation.

6 And with that, Your Honor, we will call
7 Dr. Kavitha Raj, treating physician for Mr. and
8 Mrs. Pilliod.

9 This was taken on January 8th, 2019, in
10 Pleasanton, California.

11 The entire video lasts one hour and 28
12 minutes-- sorry -- the whole thing lasts two hours. The
13 direct is one hour 28 minutes, the cross is 26 minutes.

14 **THE COURT:** Okay.

15 (Video excerpts from the deposition testimony
16 of Kavitha Raj played in open court; not reported
17 herein.)

18 **THE COURT:** There's nothing on my screen.
19 There's nothing on my screen.

20 **MR. MILLER:** We'll fix that.

21 **MR. WISNER:** May I just look at that screen to
22 see if it's this one?

23 **THE COURT:** Sure.

24 **MR. WISNER:** It's not there either.

25 **THE COURT:** If it doesn't work, I can look

1 over there. It's not a problem. Don't move a lot of
2 things around.

3 **MR. WISNER:** It's weird because that one is
4 not working either.

5 **THE COURT:** It's the same -- given that size
6 it's about the same as looking at that. So that's fine.
7 We'll just check it later at the break. Just keep
8 going.

9 (Video excerpts from the deposition testimony
10 of Kavitha Raj resumes playing in open court; not
11 reported herein.)

12 **THE COURT:** We're going to take a quick
13 10-minute break. How long have we -- we're going to
14 quit at 4:30 so I thought we needed to take a quick
15 10-minute break right now.

16 (Recess taken at 3:24 p.m.)

17 (Proceedings resumed in open court in the
18 presence of the jury at 3:39 p.m.)

19 **THE COURT:** Okay. We're going to continue
20 with the video.

21 **MR. WISNER:** Yes, Your Honor.

22 I just want to clarify something because it
23 occurred to me that I hadn't explained it and I just
24 talked to counsel about it.

25 The way this deposition was taken was the

1 first portion of it, I did the deposition, and then
2 Monsanto did it, but it was about Mrs. Pilliod.

3 And then the second portion, I did it. So it
4 actually kind of goes back and forth a couple of times,
5 but the first part is about Alberta and the second part
6 is about Alva.

7 **THE COURT:** That's fine. Good to know because
8 actually the jurors need to know.

9 **MR. WISNER:** Yeah.

10 (Video excerpts from the deposition testimony
11 of Kavitha Raj resumes playing in open court; not
12 reported herein.)

13 **THE COURT:** Let's end for the day and start
14 tomorrow.

15 Ladies and gentlemen, we're going to break now
16 because we'll start with testimony about Mr. Pilliod
17 separately fresh tomorrow.

18 So thank you for your time and attention
19 today. We will be in session at 9:00 o'clock tomorrow.
20 I know we started a little bit late the last couple of
21 days. We're going to try to start on time. And thank
22 you for everything.

23 And don't talk about anything, don't talk
24 about the case to anyone. And have a good evening,
25 forget you're a juror, and enjoy your family.

1 (Jury excused for the evening recess.)

2 (Proceedings continued in open court out of
3 the presence of the jury:)

4 **THE COURT:** So tomorrow we start with the
5 remainder of her testimony, the Pilliods, and then
6 what's happening with this, is it Mr. Mills or Dr.?

7 **MR. ISMAIL:** It's Mr. Mills.

8 **THE COURT:** Is he the economist?

9 **MR. MILLER:** He is.

10 **MR. ISMAIL:** So Mr. Mills had two components
11 of his testimony, one of which we've resolved by
12 stipulation, you need not address, that's the net worth
13 issue. The parties have covered that part.

14 The issue that he's being called for tomorrow
15 relates to his calculation of medical expenses for
16 Mrs. Pilliod. And the issue, as we've been sort of
17 sounding this alarm for a while now with respect to
18 Mr. Mills is that under California law, of course, for
19 both past or future medical expenses, it has to be based
20 on what has actually been paid by the plaintiff for the
21 drug. I don't think there's any dispute under *Howell*
22 and its progeny.

23 Mr. Mills, in his report, uses a basis for
24 medical expenses that is a one-page printout from the
25 Internet from drugs.com, which on its face says this

1 does not apply -- this price does not apply to anyone
2 who has insurance. It's sort of the marked-up rate.

3 So we've been asking for quite some time
4 what -- how much of Mrs. Pilliod actually -- how much
5 has been paid either by her or on her behalf for her
6 relevant treatment which informs Mr. Mills'
7 calculations.

8 And we've never gotten an answer. There are
9 no documentations that show what she has paid for her
10 Revlimid and indeed we know for certain it's not the
11 number that Mr. Mills is using in his calculation.

12 So we are --

13 **THE COURT:** This was all the subject of a
14 motion in limine; right?

15 **MR. ISMAIL:** It was. And if he can lay the
16 foundation -- and Your Honor has said several times
17 *Howell* says what it says, and he has to give a number
18 that's compliant with the law.

19 **THE COURT:** Right.

20 **MR. ISMAIL:** So here we are the day before.
21 We still don't have the number of what Mrs. Pilliod's --
22 what cost --

23 **THE COURT:** Is there a number, Mr. Miller?

24 **MR. MILLER:** Your Honor, there is a number.
25 \$21,000 per month. California law does not say in the

1 future we have to deduct or figure out what she might be
2 able to have paid. That's not California law. That's
3 why Your Honor ruled and denied their motion in limine.

4 To be clear, here's the evidence, Your Honor.
5 In the past -- she needs Revlimid to stay alive.
6 Dr. Rubenstein says it and Dr. Nabhan says it. And no
7 one disputes it. It costs \$21,000 a month. In the
8 past, she has had insurance pay a lot of it, some
9 charities have paid some. And we've stipulated past
10 medical expenses. We have a stipulation that the
11 parties have worked out.

12 This is future testimony. And we don't know
13 in the future if she'll have health insurance, if health
14 insurance will cover it, if charities will continue to
15 help her. That's why under California law,
16 Your Honor -- and the Court's already ruled on this, and
17 I don't know what they're talking about asking for more
18 information. The Court has already ruled and that's
19 California law. In the future, we don't deduct for what
20 insurance she might have in three years. That's not the
21 law.

22 **MR. ISMAIL:** We're not asking for them to
23 deduct what insurance has paid. We're asking them to
24 base any medical expenses calculation on what is
25 actually -- what the drug costs her, not a theoretical

1 person.

2 **THE COURT:** I understand what you're saying.

3 So are you making an assumption, Mr. Miller,
4 that she's not going to have insurance and therefore the
5 gross amount or whatever the posted amount -- you know,
6 the maximum amount, which is, you know, \$21,000 is a
7 fair estimate of what her expense would actually be?

8 **MR. WISNER:** It is. Dr. Nabhan has testified
9 at deposition, they queried extensively on it, that it's
10 \$21,000 a month.

11 **MR. ISMAIL:** Doctor -- please finish.

12 **MR. MILLER:** Thank you.

13 And he's backed that up with information from
14 his own practice.

15 **THE COURT:** Well, I don't doubt that -- you
16 know, we all know that the stated amount for drugs is
17 very high and that what people actually pay is generally
18 something else depending on what their circumstances
19 are. So I'm not suggesting that \$21,000 isn't that
20 published amount by whoever that drug maker is.

21 I think Mr. Ismail's concern is a different
22 one, I guess, that in realty she's not going to pay that
23 because she is covered by insurance at this point.

24 So my question was going to be: So is there
25 any evidence -- so what is her insurance situation?

1 Which is, you know, some people are provided insurance.
2 I will have lifetime insurance because I have the job I
3 have currently. So if anybody is asking what I'm going
4 to pay, well, it would be based on whatever my
5 insurance -- because I'm going to always have insurance.
6 I know that.

7 **MR. MILLER:** And you've earned it, Your Honor.

8 **THE COURT:** No, no, what I'm saying -- not my
9 point.

10 My point is simply that some people know
11 they'll have insurance because she receives insurance
12 through Mr. Pilliod's job or he's retired and so their
13 insurance and benefits are set and therefore they know
14 that they're not going to pay the rack rate for
15 Revlimid, if that's what it is.

16 So I'm just asking: Is all that information
17 at play? Is it not in play?

18 **MR. MILLER:** I don't think it's in play. I
19 think she does have health insurance now. Certainly not
20 trying to suggest otherwise. She has charity that is
21 helping out with the difference.

22 But in the future, that's not what California
23 law says, and we briefed it and I thought the Court
24 ruled. We can go back to it, but I need to get the case
25 out. I didn't know we were going to argue this until

1 about 10 minutes ago.

2 **THE COURT:** I just really love the way you
3 guys do --

4 **MR. MILLER:** Maybe tomorrow morning when I
5 have my briefs.

6 **THE COURT:** Oh, no, we will not be chatting at
7 9:20 tomorrow morning.

8 Let me go back and reread *Howell*, for one
9 thing. I think it's important to go back and reread
10 *Howell*.

11 **MR. ISMAIL:** In fairness, Your Honor,
12 Mr. Mills, we got notice yesterday at 9:00 o'clock last
13 night that he's coming on Thursday. So he was not on
14 this week's agenda. So that's why it's coming up today.

15 And, Your Honor, the *Howell*, of course, is the
16 initial case. *Corenbaum* was the one that applies *Howell*
17 to future medical expenses. So *Howell* was retrospective
18 and -- on the facts of that case, but it's been applied
19 to future.

20 And it is -- Mr. Mills was asked at his
21 deposition --

22 **THE COURT:** Give me the cite because I don't
23 have all those *Sargon* papers. I have to get them
24 offline because I had to get rid of some of those
25 papers.

1 **MR. ISMAIL:** Do you want the case cite?

2 **THE COURT:** Yes, give me the cite.

3 **MR. ISMAIL:** One moment. So *Howell* is 52 --

4 **THE COURT:** I know what that is. Just the
5 other case.

6 **MR. ISMAIL:** Just a second. 215 Cal. App. 4th
7 1308.

8 **THE COURT:** 1308.

9 **MR. ISMAIL:** Yes.

10 So it remains the case, Your Honor, that we
11 asked Mr. Mills what his factual predicate is for using
12 that amount. He says, "I took it entirely from
13 Dr. Nabhan." He's never spoken to Dr. Nabhan. He just
14 read his report.

15 We take Dr. Nabhan's deposition.

16 We say: Where does this number come from?

17 He says: I went out and I Googled it.

18 We said: Do you have any information as to
19 what Mrs. Pilliod is actually -- what it's actually cost
20 her?

21 He says: I have no idea.

22 He doesn't know. We've never seen an
23 insurance explanation of benefit. We've never seen a
24 bill that's been submitted on her behalf for Revlimid.
25 We've never seen the price paid for her. So this is

1 literally the rack rate from the Internet which both --

2 **THE COURT:** There must be something based on
3 what's already been paid --

4 (Simultaneous colloquy.)

5 **MR. ISMAIL:** That's what we asked for and
6 we've never been provided.

7 **MR. MILLER:** Well, that would go to the
8 weight, Your Honor.

9 **THE COURT:** No, I'm talking about you're
10 asking for both past and future medical expenses. So
11 I'm just asking in terms of asking for the past, the
12 number, the hard number of what's already been, that
13 information wasn't exchanged? Or was just a number
14 given? I don't know. I'm asking.

15 **MR. MILLER:** We stipulated on the past medical
16 expenses. We have a stipulation.

17 **MR. ISMAIL:** We stipulated on the past which
18 doesn't include Revlimid. And they've stipulated --

19 **THE COURT:** It must include Revlimid because
20 if she's actually paid -- or she's never paid anything
21 for the Revlimid to date so that's not part of it.

22 **MR. MILLER:** Exactly.

23 **THE COURT:** I see.

24 **MR. MILLER:** And Dr. Nabhan isn't grabbing
25 this off the Internet. He's published with

1 Dr. Rubenstein on Revlimid. He prescribed Revlimid for
2 years and he backed it up by looking at drugs.com.

3 This is not a wild number. This is a solid
4 number. They're just trying to argue future expenses.
5 And I think Your Honor hit the nail on the head. If you
6 read those cases, I think the Court will see what we
7 already talked about before, it doesn't apply in the
8 future.

9 If they want to make some argument about maybe
10 you'll get a charity to pay in the future, that's fine.
11 But they can't argue that future expense isn't
12 legitimate, isn't based on sound science -- isn't based
13 on expert testimony. She needs --

14 **THE COURT:** So there seem to be two issues,
15 one is what the actual rack rate is which sounds like
16 it's not really that much of an issue because it's 20-
17 21,000. I mean, it's got to be somewhere in that
18 number. I mean, I know it's not 5- and really you're
19 saying 21-. It's a lot of money, it's a whole lot of
20 money.

21 But the whole lot of money isn't so much in
22 dispute as whether or not the whole lot -- the rack rate
23 is actually the number on which the future should be
24 based.

25 **MR. MILLER:** I think two years ago it's

1 18,000. It's gone to 21,000. We haven't even added --
2 I don't think we have an inflation figure, I can go back
3 and look.

4 But, anyway, I think the Court ought to read
5 those two cases, I ought to read those two cases, take
6 five minutes, not 25, tomorrow morning and look at it.

7 **MR. WISNER:** I think there's an important
8 legal point here, right, and you'll see in the briefing.
9 Part of her expenses are actually paid for by the drug
10 company. And every year she actually has to -- she'll
11 testify to this before Mr. Mills takes the stand. So
12 the foundation will be laid through her testimony.

13 And every year she has to reapply, and the
14 drug company says yes or no. And if they say no, then
15 she's in the hole quite a significant amount of money.
16 I don't know the exact number. She'll be able to
17 testify to that.

18 Whether or not her insurance -- you know,
19 things change with insurance coverage all the time.
20 They could -- she could lose it or whatever. And I
21 think the reason for that is that under California law,
22 when you look into the future you can't assume insurance
23 or charity, you have to assume the full cost.

24 Now, if her drug company that's giving her or
25 the insurance company wants to say, hey, pay us back

1 since you got paid for future damages in your thing,
2 they can bring a lien against her judgment. But it's
3 not a point of predicting future damages. That's how it
4 works. So I just wanted to bring that out as sort of
5 the problem.

6 **THE COURT:** Let me just go back and look at
7 the cases.

8 **MR. MILLER:** Sure.

9 **THE COURT:** And we'll talk about it at 8:30.

10 **MR. WISNER:** Sounds good.

11 **MR. EVANS:** Your Honor, I just want to put one
12 thing on the record before I forget.

13 We agreed, I think, with counsel that the
14 playing of the treating physician depositions, I think
15 we stipulated that's okay without having to worry about
16 subpoena or not subpoenaing.

17 I just don't want to be in a position where
18 after we play the treating physicians that the
19 plaintiffs are going to play this week, that when we go
20 try to play some, you know, downstream, there's going to
21 be an issue as to us not having subpoenaed them or
22 whatever.

23 So I just want to make sure we have on the
24 record that the parties agree that the playing of the
25 treating physicians is going to be okay for both sides.

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MR. WISNER: That's correct. And just to be clear, if you're talking about -- I think we're talking about the same thing. If you want to play a treating physician depo that we haven't played in our case in chief in yours --

MR. EVANS: Yeah.

MR. WISNER: Yeah, that's correct.

THE COURT: Thank you. See you tomorrow morning.

(Proceedings adjourned at 4:27 p.m.)

1 State of California)
2 County of Alameda)

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I, Kelly L. Shainline, Court Reporter at the Superior Court of California, County of Alameda, do hereby certify:

That I was present at the time of the above proceedings;

That I took down in machine shorthand notes all proceedings had and testimony given;

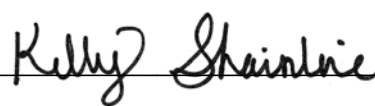
That I thereafter transcribed said shorthand notes with the aid of a computer;

That the above and foregoing is a full, true, and correct transcription of said shorthand notes, and a full, true and correct transcript of all proceedings had and testimony taken;

That I am not a party to the action or related to a party or counsel;

That I have no financial or other interest in the outcome of the action.

Dated: April 17, 2019



Kelly L. Shainline, CSR No. 13476