

Exhibit 3

Confidential - Charles Benbrook, Ph.D.

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

IN RE: ROUNDUP PRODUCTS LIABILITY)
LITIGATION)

This Document Relates To:) MDL NO. 2741

Hardeman v. Monsanto Co., et al.) Case No.

Case No. 3:16-cv-00525;) 3:16-md-02741-VC

Stevick v. Monsanto Co., et al.)

Case No. 3:16-cv-02341; and)

Gebeyehou v. Monsanto Co., et al.)

Case No. 3:16-cv-05813)

CONFIDENTIAL

VIDEOTAPED DEPOSITION OF CHARLES BENBROOK, Ph.D.

Confidential videotaped deposition upon oral examination of CHARLES BENBROOK, Ph.D., taken at the request of the Defendants before Amy J. Brown, RMR, CRR, CLR, a Certified Court Reporter, WA CCR No. 2133, at the Quality Inn & Suites Conference Center, 700 Port Drive, Board Room, Clarkston, Washington, commencing at or about 9:03 a.m. on December 28, 2018, pursuant to the Federal Rules of Civil Procedure.

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1 (Exhibit 1A marked for identification.)
 2 VIDEOGRAPHER: We are now on the record. My
 3 name is Vladimir Korneychuk. I am a videographer for
 4 Golkow Litigation Services. Today's date is
 5 December 28th, 2018, and the time is 9:03 a.m.
 6 This video deposition is being held in the
 7 Quality Inn in Clarkston, Washington, in the matter of
 8 In Re: Roundup Products Liability Litigation, for the
 9 United States District Court, Northern District of
 10 California. The deponent is Charles Benbrook, Ph.D.
 11 Would counsel please identify themselves.
 12 MR. KRISTAL: Jerry Kristal from Weitz and
 13 Luxenberg on behalf of plaintiffs.
 14 MR. ESFANDIARY: Pedram Esfandiary for the
 15 plaintiffs.
 16 MR. FAYNE: Zach Fayne, Arnold & Porter, for
 17 defendant Monsanto Company.
 18 MR. HOLLINGSWORTH: Grant Hollingsworth of
 19 Hollingsworth LLP for defendant Monsanto.
 20 VIDEOGRAPHER: The court reporter is Amy Brown.
 21 Will you please swear in the witness.
 22 CHARLES BENBROOK, Ph.D.,
 23 called as a witness on behalf of the Plaintiff,
 24 who, having been first duly sworn, was then and
 25 there examined and testified as follows:

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1 MR. KRISTAL: Before we get started, I would
 2 state for counsel that, as I'm sure they know, based on
 3 virtually the identical report that Dr. Benbrook has
 4 written and has been served in other cases, he's been
 5 deposed five times in the last ten months. So I would
 6 just ask that you please not ask repetitive questions of
 7 things that have already been asked.
 8 MR. FAYNE: I --
 9 MR. KRISTAL: We don't want to get in a fight.
 10 I'm just saying at some point it really becomes an
 11 exercise more in harassment than legitimate discovery.
 12 I'm not accusing you of anything. I'm just giving you a
 13 heads-up.
 14 MR. FAYNE: I understand your concern. I'll
 15 state that there are going to be some questions that
 16 are -- appear similar to questions asked in prior
 17 depositions.
 18 We just want to make sure nothing has changed
 19 and confirm that in his new report, which is a new
 20 report, that he still has the opinions he's expressed in
 21 the past, and we'll do our best to avoid repetition.
 22 MR. KRISTAL: Thank you. I appreciate that.
 23 And certainly asking if his opinions have changed
 24 are -- those are legitimate questions.
 25 MR. FAYNE: And before we get started, we'd

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1 also like to state for the record that we are
 2 designating this deposition confidential pursuant to the
 3 court's con -- case management order.
 4 MR. KRISTAL: Now, my understanding, also, just
 5 in housekeeping matters -- I don't have it with me --
 6 was there a three-hour time limit on people that have
 7 already been deposed? Do you recall that?
 8 MR. FAYNE: There's a three-hour time limit, I
 9 believe, for specific causation experts. The -- I
 10 believe the timeline for this deposition is the normal
 11 seven hours.
 12 MR. KRISTAL: All right. Well, if we approach
 13 we will check what you say, and if that's correct, then
 14 seven hours it is.
 15 MR. FAYNE: Sure.
 16 EXAMINATION
 17 BY MR. FAYNE:
 18 Q. Dr. Benbrook, could you please state your name
 19 for the record.
 20 A. Charles Benbrook.
 21 Q. And you've been deposed many times before,
 22 correct, Dr. Benbrook?
 23 A. Yeah, several times.
 24 Q. So you're aware of the ground rules for
 25 depositions?

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1 A. I am.
 2 MR. KRISTAL: Can we go off the record for a
 3 second?
 4 VIDEOGRAPHER: Off the record at 8:06 a.m.
 5 (A brief recess was had.)
 6 VIDEOGRAPHER: Back on the record at 8:07 a.m.
 7 Q. (BY MR. FAYNE:) So, Dr. Benbrook, I'm going to
 8 dispense with the preliminary instructions for
 9 depositions. Is that okay?
 10 A. That's fine.
 11 Q. And there's nothing that would prevent you from
 12 giving accurate testimony; is that correct?
 13 A. Not that I'm aware of.
 14 Q. And you've given several days of deposition
 15 testimony in the Roundup litigation in the past year; is
 16 that correct?
 17 A. That's correct.
 18 Q. Two days in the Johnson case in February 2018?
 19 A. I believe that's the accurate date, but I don't
 20 have them memorized.
 21 Q. Sure. I'll represent to you --
 22 A. Okay. Fine.
 23 Q. -- that your depositions were in February. You
 24 don't have any reason to believe that that's incorrect?
 25 A. No.

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1 Q. And you had two days in the Peterson and Hall
 2 case; correct?
 3 A. Correct.
 4 Q. And that was May and August, respectively?
 5 A. Yes.
 6 Q. Also one day in the Adams case in September?
 7 A. Correct.
 8 Q. And you also testified in the Johnson trial in
 9 California on July 27th?
 10 A. Correct.
 11 Q. You gave all of that testimony under oath;
 12 correct?
 13 A. Yes.
 14 Q. You told the truth when you gave that
 15 testimony?
 16 A. To the best of my ability, yes.
 17 Q. Testified as accurately as you could?
 18 A. To my understanding of the record that I've
 19 been asked to review, yes.
 20 Q. And you stand by all the testimony you gave
 21 during those depositions and at trial?
 22 A. Yes.
 23 Q. We've marked as Exhibit 1 the deposition notice
 24 for this deposition.
 25 (Exhibit 1 marked for identification.)

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1 A. Yeah.
 2 Q. I believe you have it in front of you.
 3 MR. KRISTAL: And just for the record, we had
 4 marked as 1A -- and I'll put it in the pile -- the
 5 plaintiff's responses and objections to the dep notice
 6 that had been served on counsel for Monsanto on
 7 December 18th. Thank you.
 8 Q. (BY MR. FAYNE:) Have you seen this document
 9 before?
 10 A. Yes.
 11 Q. And if you look on page -- it starts on page 4,
 12 I believe. There are a number of requests for
 13 production. Do you see that?
 14 A. I don't see a page 4, but I'm sure you'll
 15 direct me right to where you want to ask something
 16 about.
 17 Q. Yeah. There are -- there are no page numbers
 18 on here, I apologize, but if you flip to it looks like
 19 the fourth page, the heading that says "Request for
 20 Production."
 21 A. Yes.
 22 Q. Did you check your files for responsive
 23 materials?
 24 A. I did.
 25 Q. And I believe you produced a handful of e-mails

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1 with other experts in the case; is that correct?
 2 A. Right. I did.
 3 Q. Other than the e-mails that you produced, have
 4 you had any other communications with the individuals
 5 listed in Request Number 18?
 6 A. Number 18?
 7 Q. Yes. Paragraph 18. I'm sorry.
 8 A. Let's see. The only person that I've had any
 9 communications with was Aaron Blair, and I believe I
 10 disclosed the e-mails to him.
 11 Q. Other than the e-mail communications, have you
 12 had any telephone conversations with Dr. Blair since
 13 your last deposition?
 14 A. Yes, I did. I've had, I think, two.
 15 Q. When was the first one?
 16 A. It was -- do you have the e-mails? Because
 17 that will give me the date.
 18 Q. I don't have them with me. I'm sorry.
 19 A. Okay.
 20 Q. I e-mailed Dr. Blair. The e-mail has been
 21 disclosed to you. And asked him a technical question
 22 about the glyphosate portion of the Volume 122
 23 monograph.
 24 MR. KRISTAL: I think the question was when was
 25 it.

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1 THE WITNESS: It was in November sometime.
 2 That's as close as I can recall.
 3 Q. (BY MR. FAYNE:) And what was the subject of
 4 that conversation?
 5 A. I asked him a question about why certain
 6 genotox studies in the glyphosate section of Volume 122
 7 were discussed only in the narrative portions of the
 8 volume and not included in the core tables in which the
 9 majority of genotoxicity studies were presented in that
 10 report. I wasn't clear why some studies appeared only
 11 in the narrative text and others were in the tables.
 12 Q. Did Dr. Blair have an answer for that question?
 13 A. Yes.
 14 Q. What was his answer?
 15 A. That the -- his recollection was that those
 16 studies assessed genotoxic mechanisms of action that
 17 were not covered by the core tables, and in particular
 18 assays on impacts on sex hormones and oxidative stress.
 19 Q. Did he explain why those types of assays were
 20 not covered in the core tables?
 21 A. Just that they didn't fit. If you look at
 22 the -- the taxonomy of the way IARC did their tables,
 23 that answer made sense to me. I understood it.
 24 Q. Do you recall how long your conversation with
 25 Dr. Blair was?

Page 14

1 A. 15 minutes.

2 Q. You testified that you had two conversations

3 with Dr. Blair. Do you recall when the second one was?

4 A. Let's see. Maybe I only had one phone call

5 with him. I sent him an e-mail and asked him if I could

6 talk to him, and then I -- I had the phone conversation.

7 And then I -- he expressed an interest in what I was

8 doing, and I told him I was doing an assessment of the

9 genotox database relied on by IARC and relied on by EPA.

10 And he asked me a little bit about what I was

11 doing, and then I sent him a subsequent e-mail with just

12 a few of the results which are actually, I think, also

13 in my report. And there might not have been a second

14 phone call. I can't really remember.

15 Q. Any in-person conversations with Dr. Blair?

16 A. No.

17 Q. And no telephone calls or in-person

18 conversations with any of the other individuals listed

19 in --

20 A. The only time I've ever met, been with any of

21 them was Dr. Sawyers, and it was just momentarily at the

22 trial. He testified before me. I spent a little time

23 with him there.

24 Q. And for the court reporter's benefit, if you

25 could wait until I finish my question, and I'll --

Page 15

1 A. Oh.

2 Q. -- I'll try to do the same as well. I know

3 it's -- in typical conversation, it's hard to. And if

4 we could try to do that.

5 A. Just keep reminding me.

6 Q. Absolutely, I will do that. And I am sure she

7 will keep reminding me, as well.

8 At your first deposition in February, you

9 testified that you spent approximately 3 -- 320 to

10 350 hours reviewing materials in preparation for your

11 role as an expert witness; do you recall that?

12 A. I recall discussing it. I don't recall the

13 exact hours. I'm sure I produced the invoices that had

14 been submitted up until that time, and the number came

15 from adding them up.

16 Q. In May you testified that you spent another

17 50 hours or so at your deposition. Does that sound

18 about right?

19 A. Yeah.

20 Q. Do you recall roughly how much time you spent

21 working on the Roundup-related litigation between your

22 deposition in May and the end of August?

23 A. No. I'd have to look at my invoices.

24 Q. More than 100 hours?

25 A. I'd have to look at the invoices. There were

Page 16

1 months when I spent a lot of hours and a few months when

2 I didn't spend a lot.

3 Q. In preparing your expert report for this

4 case -- and by "this case," I'm referring to the MDL

5 cases of Stevick, Hardeman and Gebeyehou.

6 MR. KRISTAL: That's as good as any of us are

7 going to get. We'll take it.

8 THE WITNESS: I hope I don't have to try that

9 one.

10 Q. (BY MR. FAYNE:) I'll keep working on it

11 throughout the day. I'm going to start that question

12 over.

13 In preparing your expert opinion for these

14 cases of Stevick, Hardeman and Gebeyehou, did you rely

15 in part on the work that you've done prior to August?

16 A. Yes.

17 Q. And that's the work you were doing in the

18 Johnson case?

19 A. Yes.

20 Q. And the Peterson and Hall case?

21 A. Yes.

22 Q. And the Adams case?

23 A. Yes.

24 Q. So you were able to take advantage of that

25 earlier work in preparing your expert opinion for this

Page 17

1 case; correct?

2 A. That is -- that is correct.

3 (Exhibit 2 marked for identification.)

4 Q. (BY MR. FAYNE:) In front of you, you have an

5 exhibit that's marked as Exhibit Number 2, and these are

6 your invoices from -- I believe it's September, October,

7 and November of 2018; is that correct?

8 A. Yep. That's correct.

9 MR. KRISTAL: Thank you.

10 Q. (BY MR. FAYNE:) And so if we can quickly flip

11 through them. It looks like you spent 19 and a half

12 hours in September working on this case; is that

13 correct?

14 A. Correct.

15 Q. 63 hours in October; is that correct?

16 A. Yes.

17 Q. And 82 hours in November; correct?

18 A. Yes.

19 Q. So in total you've spent over 500 hours on

20 Roundup-related litigation. Does that sound about

21 right?

22 A. Sounds about right.

23 Q. More than 600 hours?

24 A. I -- I'd have to add them up.

25 Q. And you're being paid \$300 an hour to testify

Page 18

1 for the plaintiffs in these cases; is that correct?
 2 A. Yes, sir.
 3 Q. So over the course of the Roundup litigation,
 4 you've been paid more than \$150,000. Does that sound
 5 right?
 6 A. I -- yeah, I'm sure it's a bit more than that,
 7 yep.
 8 Q. More than \$200,000?
 9 A. I don't think so.
 10 Q. So you think it's somewhere between 150 and
 11 \$200,000?
 12 A. Yeah.
 13 MR. KRISTAL: Also assumes the invoices have
 14 been paid.
 15 Q. Have the invoices been paid?
 16 A. Well, not all of them. Most of them.
 17 Q. And your expectation is that the invoices will
 18 be paid; correct?
 19 A. Yes.
 20 Q. At your -- some of your earlier depositions,
 21 you testified that it's a very large record and you hope
 22 to have the opportunity to dig deeper into it as the
 23 case went on; is that correct?
 24 A. That is correct.
 25 Q. And you've now produced a new expert report for

Page 19

1 the Stevick, Hardeman and Gebeyehou cases; correct?
 2 A. That is correct.
 3 Q. In preparing that new report, have you had the
 4 opportunity to dig deeper into the record?
 5 A. Yes.
 6 Q. Did that include review of Bates-numbered
 7 documents -- I'll refer to them as "MONGLY documents."
 8 A. Yes.
 9 MR. KRISTAL: It's M-O-N-G-L-Y, all caps.
 10 MR. FAYNE: Thank you.
 11 MR. KRISTAL: I always notice when the court
 12 reporters wince.
 13 Q. (BY MR. FAYNE:) How did you find the new
 14 documents that you reviewed?
 15 A. Documents have come to me in a variety of
 16 different ways. I have had for many years extensive
 17 files of my own, particularly EPA documents. Some of
 18 those also appear in the record as MONGLY documents.
 19 I -- as I have worked through the record, I
 20 have identified particular issues that I have felt are
 21 important for me to address thoroughly, the issues I've
 22 been asked to look at, and I -- when I feel that there's
 23 likely more in the record or when there's a reference to
 24 a document in a -- in a MONGLY e-mail and I want to see
 25 the base document or see what happened as a result of

Page 20

1 something, an event that's being discussed, I would ask
 2 for more documentation either before or after a
 3 particular date on a MONGLY document.
 4 Typically I would send those requests to either
 5 Jeff Travers of The Miller Firm, or Jerry Kristal. I
 6 believe I sent a few such requests to David Wool with
 7 Andrus Wagstaff. And usually within a day or two I
 8 would get a dump of documents and I would go through
 9 those, and often the new documents would lead to
 10 additional questions for further material.
 11 Q. The testimony that you just gave, you're
 12 referring to the course of the entire -- your
 13 entire -- your work on this entire litigation; correct?
 14 A. Well, yes. In the -- throughout my work on the
 15 Johnson case, the person that I typically requested to
 16 do searches and send me new documents was Jeff Travers
 17 at the Miller group, but in the last six or eight
 18 months, Jerry Kristal has served that role in helping
 19 me.
 20 Q. So I'd like to focus you on the period of time
 21 since the Johnson trial; okay?
 22 A. That would be fine.
 23 Q. In that period of time, have you asked
 24 Mr. Kristal for additional documents on topics relevant
 25 to this litigation?

Page 21

1 A. Yes.
 2 Q. Do you recall what topics you asked for
 3 additional documents on?
 4 A. Oh, well, at least a dozen. Most of the major
 5 areas that are covered in my report. Stewardship, the
 6 assessment of the cancer assays and genotoxicity, the
 7 sum of the incident report documents, a variety of
 8 documents involving surfactants.
 9 I've asked multiple times for documents
 10 relating to studies done on skin penetration. And as I
 11 said, pretty much in almost all of the substantive
 12 sections of my expert report there are some new material
 13 that I accessed and reviewed and has helped inform my
 14 opinions in the current version of my report.
 15 Q. To the extent you're relying on any of those
 16 new documents, are they cited either in your report or
 17 in your reliance list?
 18 A. They are.
 19 MR. KRISTAL: And to a certain extent in the
 20 reference list, as well, that was provided subsequent to
 21 the report.
 22 MR. FAYNE: I understand, Counsel. I'd
 23 appreciate it if -- I'm asking for his testimony, not
 24 yours. But I appreciate the --
 25 MR. KRISTAL: It was more to help you, but...

Page 22

1 MR. FAYNE: I understand.
 2 MR. KRISTAL: Okay.
 3 Q. (BY MR. FAYNE:) You also had a supplemental
 4 reference list that you produced --
 5 A. Correct.
 6 Q. -- in connection with this deposition; correct?
 7 A. Yes.
 8 Q. So they might also be listed there, as well?
 9 A. And there might even be one or two that didn't
 10 make the list.
 11 Q. So there might be documents that you're relying
 12 upon for your expert opinion that you have not disclosed
 13 in any of your reliance lists?
 14 A. There might be. I'd -- it would be very hard
 15 to tell. I've looked at thousands of documents up until
 16 now.
 17 Q. In preparing for your deposition today, did you
 18 review transcripts from your prior depositions?
 19 A. Yes.
 20 Q. Did you review transcripts from the Johnson
 21 trial?
 22 A. No.
 23 Q. Which deposition transcripts did you review, if
 24 you recall?
 25 A. You're speaking about my depositions?

Page 23

1 Q. Yeah. I'm sorry. Yes. So you testified that
 2 you reviewed some of your prior deposition transcripts;
 3 correct?
 4 A. Correct.
 5 Q. Which ones?
 6 A. All of them.
 7 Q. Did you review any other deposition transcripts
 8 in preparation for today?
 9 A. Yes.
 10 Q. Which ones?
 11 A. Several. Sitting here right now, I probably
 12 won't remember all of them. And in addition, sometimes
 13 when I review a deposition transcript, there's certain
 14 issues that I'm looking for, so I don't do an absolutely
 15 thorough read.
 16 But Donna Farmer, David Saltmiras,
 17 Dan Goldstein, Dr. Sawyers -- two of Dr. Sawyers'
 18 depositions. Let's see. Who else? Acquavella, I
 19 believe I've looked at. I don't recall any others at
 20 this time, although there are probably a few others.
 21 (Exhibit 3 marked for identification.)
 22 Q. (BY MR. FAYNE:) I'd like to turn now to what's
 23 marked Exhibit 3 --
 24 A. Yep.
 25 Q. -- which is before you. And this is your

Page 24

1 expert report that you produced in the Hardeman, Stevick
 2 and Gebeyehou cases; correct?
 3 A. Yes.
 4 Q. And it's approximately 166 pages, 787 numbered
 5 paragraphs. Does that sound about right?
 6 A. Sounds about right.
 7 MR. FAYNE: This is not the only -- I'm sorry,
 8 Counsel. Let me give you a copy.
 9 THE WITNESS: And I believe you've been
 10 provided the errata sheet. It was e-mailed to you -- or
 11 e-mailed to you, maybe.
 12 MR. ESFANDIARY: Yes. I sent it to you last
 13 night. Sent them to --
 14 THE WITNESS: Just typos, errata sheet.
 15 MR. FAYNE: I have not received that, but we
 16 can talk about that off the record.
 17 THE WITNESS: Okay. We'll get it to you.
 18 MR. KRISTAL: I may have a copy, actually.
 19 This had been e-mailed to I'm not sure which counsel
 20 last night.
 21 MR. ESFANDIARY: E-mailed to Pamela Yates and
 22 Julia DuPont, I believe, at Arnold Porter.
 23 MR. FAYNE: Yes. Thank you.
 24 Q. (BY MR. FAYNE:) So Exhibit 3 is your expert
 25 report in these cases; correct?

Page 25

1 A. Yes.
 2 Q. And when I refer to "these cases," you'll
 3 understand that I mean the Hardeman, Stevick and
 4 Gebeyehou cases?
 5 A. Yes, sir.
 6 Q. If I'm not referring to those specific cases,
 7 I'll be sure to say so during the deposition; is that
 8 okay?
 9 A. Yep.
 10 Q. This is not the only report that you've
 11 produced in the Roundup litigation; correct?
 12 A. Yes.
 13 Q. You also produced a report in the Johnson case;
 14 correct?
 15 A. That is correct.
 16 Q. Have you produced any other expert reports in
 17 the Roundup-related litigation?
 18 A. No.
 19 Q. Who wrote the first draft of this report?
 20 A. I did.
 21 Q. Did the attorneys provide comments on your
 22 draft?
 23 MR. KRISTAL: Objection. Privileged.
 24 THE WITNESS: No.
 25 MR. KRISTAL: You don't have to answer those

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1 questions.

2 THE WITNESS: Oh, okay.

3 MR. KRISTAL: I'll instruct you not to -- I'll

4 instruct you next time.

5 Q. (BY MR. FAYNE:) Your expert report in these

6 cases covers topics that are similar to those addressed

7 in Johnson; correct?

8 A. Yes.

9 Q. And as we discussed previously, the work that

10 you did in the Johnson case was useful as you prepared

11 this expert report; correct?

12 A. Of course it was.

13 Q. And you were able to reuse certain sections?

14 A. Yes.

15 Q. Presumably that meant that you were able to

16 draft this expert report in less time than your Johnson

17 report; correct?

18 A. It was --

19 THE WITNESS: Did you want to say something?

20 MR. KRISTAL: No. No. No.

21 THE WITNESS: It was somewhat less work, but

22 I -- between the filing of my Johnson report and the

23 completion of this one, just off the top of my head, I

24 would say I probably have spent a roughly comparable

25 amount of time delving deeper into the record.

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1 So while not all of this report is new, all of

2 the sections are, I think, substantially refined, and

3 I -- I feel that I've been able to document and support

4 my reviews of these matters of my opinions in a more

5 thorough and effective way in the current version of the

6 report, and that took a lot of time.

7 Q. (BY MR. FAYNE:) In other words, you were able

8 to build off your Johnson report; is that a fair

9 characterization?

10 A. Build off and also extend in some significant

11 ways, yes.

12 Q. Does this report contain all of the expert

13 opinions that you intend to offer in this -- in these

14 cases?

15 A. As I've done it in every case that I've been

16 involved with, I will try to respond to any questions

17 placed to me as thoroughly as I can. This report

18 codifies opinions that I've reached based on my review

19 of the record to date, and it is what I will testify to

20 at trial, but I don't know what I'll be asked.

21 Q. Understood. But if you intended to testify

22 about additional topics, you understand that you would

23 have to amend your report; is that fair?

24 A. Yes, I understand that, sir.

25 Q. You were designated as an expert witness in the

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1 Stevick, Hardeman and Gebeyehou cases; correct?

2 A. Yes.

3 Q. Have you ever met Mr. and Mrs. Stevick?

4 A. No, I have not.

5 Q. Have you ever met Mr. Hardeman?

6 A. No.

7 Q. What about Mr. Gebeyehou?

8 A. No.

9 Q. Ever spoken to any of them?

10 A. No.

11 Q. Have you reviewed the legal complaints that

12 they filed in these lawsuits?

13 A. Perhaps scanned them. I don't recall if I

14 reviewed it in any detail.

15 Q. So fair to say that you're not relying upon

16 them in issuing your expert opinion?

17 A. No, I'm not.

18 Q. Have you ever reviewed the transcripts of their

19 depositions?

20 A. No.

21 Q. What about their responses to discovery

22 requests?

23 A. No.

24 Q. Your report did not include any opinions that

25 are specific to Mr. and Mrs. Stevick; correct?

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1 A. That is correct.

2 Q. Same for Mr. Hardeman?

3 A. Yes.

4 Q. Same for Mr. Gebeyehou?

5 A. Yes.

6 Q. Is it fair to say that you do not intend to

7 offer testimony that is specific to any one of those

8 plaintiffs?

9 A. That is correct.

10 Q. Also fair to say that you're not basing your

11 expert opinions on any facts that are unique to any of

12 their individual cases; correct?

13 A. That is also correct.

14 Q. I would like to turn to Exhibit 4. Actually,

15 before we get to Exhibit 4, if you could turn to your

16 reliance list in your expert report.

17 A. Okay. Okay.

18 Q. So your reliance list includes four categories

19 of documents; correct?

20 A. Yes.

21 Q. And that's documents with a Bates number,

22 published scientific studies and technical documents,

23 depositions, deposition exhibits, Johnson trial

24 documents and genotoxicity documents; correct?

25 A. Correct.

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1 Q. I also understand that you're relying on a few
 2 documents that are cited in your report that might not
 3 be on this reliance list; is that correct?
 4 A. That's -- that's likely true.
 5 Q. And to the extent you're relying on those
 6 documents, they're cited in the report; correct?
 7 A. Correct.
 8 Q. Are you relying on any documents that were
 9 cited in the prior version of your report that are not
 10 cited in this report?
 11 A. Oh, geez. It -- possibly.
 12 Q. You can't say one way or the other sitting here
 13 today?
 14 A. Well, I know that in the interest of trying to
 15 shorten the report and especially in light of the added
 16 material, there are -- there is some substantial
 17 passages from the Johnson expert report that are not in
 18 this report.
 19 And there may have been some MONGLY documents
 20 cited in the Johnson report, but I would
 21 still -- because I read them and they helped inform my
 22 opinions, they still form the basis of the opinions in
 23 the current report even though they're not cited.
 24 Q. Do you know whether those documents are cited
 25 in your reliance list or updated reliance list?

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1 A. Probably are. I've tried to be cumulative with
 2 it.
 3 Q. And over the past 30 years, I understand that
 4 you've also reviewed a number of documents that have
 5 informed your general thinking on pesticides and
 6 glyphosate; is that correct?
 7 A. More than 30 years, yes.
 8 Q. I think I took that number from your report,
 9 but I apologize if I got that wrong.
 10 So now if we could turn to Exhibit 4, which is
 11 your supplemental reliance list.
 12 (Exhibit 4 marked for identification.)
 13 A. Okay. Back to this one.
 14 Q. Yep. And this -- I apologize. I referred to
 15 it as supplemental. It's your updated reference list;
 16 correct?
 17 A. Yes.
 18 Q. And this lists additional Bates-numbered
 19 documents that you've relied upon in forming your
 20 opinions; correct?
 21 A. And one journal article.
 22 Q. And one journal article, correct.
 23 Is it fair to say that all of the documents
 24 that you're relying upon to support your opinion are
 25 cited either in your report, on your reliance list, or

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1 on your updated reference list?
 2 A. Yes. And it would include the documents
 3 presented as exhibits during my trial testimony and
 4 various exhibits in my depositions and the depositions
 5 of other parties to the -- to the case that I've read.
 6 Q. Could you turn to page 8 of your reliance list?
 7 A. This is back in the report?
 8 Q. Back in the report, yes. So this is Exhibit 3,
 9 page 8 of the reliance list.
 10 A. Yeah. Yeah. Yeah. Got it.
 11 MR. KRISTAL: Did I steal yours? I apologize.
 12 MR. FAYNE: No problem. This one seems to be
 13 working.
 14 Q. (BY MR. FAYNE:) So you'll see towards the
 15 bottom of this list, there are a number of documents
 16 listed as public document; correct?
 17 A. Correct.
 18 Q. And that goes on to page 9, as well?
 19 A. Correct.
 20 Q. Would you agree that it would be difficult for
 21 someone looking at this list to identify which documents
 22 you're referring to?
 23 A. It would be indeed. My apologies.
 24 Q. Are you able to identify which documents these
 25 are referring to?

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1 A. I know I can describe them in general. Would
 2 that be helpful?
 3 Q. I don't need you to do that sitting here today,
 4 but you'd be able to update this list so that it would
 5 be easier for someone to understand what you're
 6 referring to; correct?
 7 A. I'll endeavor to do that, yes.
 8 Q. Thank you. Appreciate that.
 9 THE WITNESS: Can you help me remember to do
 10 that?
 11 MR. KRISTAL: Uh-huh.
 12 (Exhibit 5 marked for identification.)
 13 Q. (BY MR. FAYNE:) And then the last exhibit we
 14 had pre-marked is just Exhibit 5, which is your updated
 15 résumé.
 16 A. Okay.
 17 MR. KRISTAL: Thank you.
 18 Q. And the only question I have for you about this
 19 right now is that this is your current résumé; is that
 20 correct?
 21 A. No. Oh, yes. Yes, it is. I'm sorry. I had
 22 to check the last change, and the last change is in
 23 there.
 24 Q. Thank you.
 25 A. Glad we got beyond the résumé part of this.

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1 Q. We're not quite done yet.
 2 MR. KRISTAL: See? You spoke too soon.
 3 Q. So I'd like to ask you some questions now about
 4 your credentials. I understand that some of these have
 5 been asked in the past, but I just want to confirm that
 6 nothing has changed. I'll try to get through this
 7 section as quickly as possible.
 8 A. Thank you.
 9 Q. I understand counsel's concern.
 10 You've never been employed by the Environmental
 11 Protection Agency; correct?
 12 MR. KRISTAL: Don't answer that question.
 13 If you want to ask since the last deposition
 14 when he was asked that exact question whether he's been
 15 employed, that's a good question. Otherwise we're not
 16 going to go through every single thing that's been
 17 already asked.
 18 MR. FAYNE: Are you --
 19 MR. KRISTAL: Yes, I'm instructing him not to
 20 answer that. But I'm not -- I think it would be proper
 21 for you to ask him since the last time he's answered
 22 that question. That's fair.
 23 Q. (BY MR. FAYNE:) You've never been employed by
 24 the FDA; correct?
 25 A. Same.

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1 MR. KRISTAL: Same objection. And it's the
 2 same request. You can get the information you need if
 3 you want it. Just ask him since the last time.
 4 MR. FAYNE: So just for the record, you're
 5 instructing the witness not to answer?
 6 MR. KRISTAL: Yes, because it's harassment at
 7 this point. He's answered those questions. You know
 8 that he hasn't been employed by EPA or FDA certainly up
 9 to the date of the last time he was asked that, which is
 10 within the last couple of months. So if you want to ask
 11 since then, that's fair. Otherwise, it is harassment.
 12 Q. (BY MR. FAYNE:) Since your last deposition, I
 13 assume you've not received any training in medicine;
 14 correct?
 15 A. Correct.
 16 Q. Since your last deposition, you've not received
 17 any formal training or degree in any physical science;
 18 correct?
 19 A. No.
 20 Q. And you are not being designated as an expert
 21 in this case in any physical science; is that correct?
 22 A. No.
 23 Q. Since your last deposition, you haven't
 24 received any formal training or degree in toxicology;
 25 correct?

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1 A. No.
 2 Q. And you are not a toxicologist; correct?
 3 A. I'm not a practicing toxicologist. I am an
 4 expert in the role of toxicology data in the assessment
 5 of pesticide risk and the types of studies that are
 6 done, the way that they are translated into quantitative
 7 estimates of risk and the role that they play in
 8 pesticide regulation. So from -- for that aspect of the
 9 field of toxicology, I am an expert.
 10 Q. How did you become an expert in that aspect of
 11 toxicology?
 12 A. Through research.
 13 Q. Reviewing public literature?
 14 A. Public literature, some -- some studies done by
 15 registrants, interactions with scientists, and
 16 engagement with the issues and other scientists over the
 17 last four decades.
 18 Q. Have you ever designed a toxicology study?
 19 A. No.
 20 Q. Have you ever conducted a toxicology study?
 21 A. No.
 22 Q. You're not an epidemiologist; correct?
 23 MR. KRISTAL: Not since the last time he's been
 24 asked that question.
 25 A. Sir, if I had training in a field of that

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1 nature, it would be on my résumé.
 2 Q. So since your last deposition, you have not
 3 received any formal training or degree in epidemiology;
 4 correct?
 5 A. As you will note, there's been no update in my
 6 résumé that indicates that I've had such training.
 7 Q. So you've received no formal training or degree
 8 in epidemiology?
 9 A. Correct.
 10 Q. Since your last deposition, you've not received
 11 any formal training or degree in pathology; correct?
 12 A. Correct.
 13 Q. You're not a pathologist?
 14 A. I am not a pathologist.
 15 Q. Do you have any formal training or degree in
 16 exposure assessment?
 17 A. No.
 18 Q. You do not claim to be an expert in exposure
 19 assessment; correct?
 20 A. Other than the role that exposure assessment
 21 methodologies play in the pesticide risk assessment
 22 process, the data that's generated by registrants in
 23 compliance with data requirements on the exposure side.
 24 I've done extensive research on the
 25 biomonitoring data that's in the public literature. I

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1 understand the tools and the methods. I am -- have a
 2 deep background in the evolution of analytical chemistry
 3 methods used to quantify the levels of pesticides in a
 4 variety of matrices and regard myself as an expert in
 5 the general tools and methods utilized to estimate
 6 exposure -- exposures to pesticides, including an
 7 herbicide like glyphosate.
 8 Q. Have you ever been qualified as an expert in
 9 any other litigation on exposure assessment?
 10 A. I've been qualified as an expert in cases where
 11 exposure assessment was one of the issues that was
 12 entailed in the case, but I wasn't specifically
 13 designated as a -- as an expert in exposure assessment,
 14 as least I don't remember ever being.
 15 Q. Do you have any formal degree or training in
 16 ADME, which, as you know, stands for absorption,
 17 distribution, metabolism and excretion?
 18 A. I'm not aware of any formal degrees in that
 19 particular field, but -- and no, I have none.
 20 Q. And you don't claim to be an expert in ADME;
 21 correct?
 22 A. Again, I do have extensive expertise in the
 23 importance of studies falling within that area of
 24 pesticide risk assessment and feel quite capable of
 25 understanding the record in this case that relates to

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1 the behavior of glyphosate herbicide and formulated
 2 herbicides in plant matrices, human skin, et cetera, and
 3 the environment.
 4 Q. Since your last deposition, you haven't
 5 received any formal training in -- or degree in
 6 corporate ethics; correct?
 7 A. Correct.
 8 Q. What about law?
 9 A. No, I haven't gone through law school in the
 10 last four months.
 11 Q. It would be pretty impressive if you had.
 12 Have you ever conducted a scientific exposure
 13 assessment?
 14 A. No.
 15 Q. Have you ever designed an assessment of
 16 exposure?
 17 A. I -- I've participated and am -- and continue
 18 in some of my work to develop the methodologies to
 19 estimate exposure to pesticides. Yes, I -- I do.
 20 Q. In what context?
 21 A. Primarily in a dietary exposure from residues
 22 in food. I've developed proprietary models that
 23 quantify dietary exposures as a result of residues in
 24 food. That's been a -- that's been a major focus of my
 25 work for over 20 years.

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1 Q. Other than dietary exposures, have you designed
 2 risk assessment for any other types of exposures?
 3 A. I haven't designed an exposure assessment
 4 study, but I've certainly reviewed and worked with
 5 several of them and several exposure assessments in EPA
 6 regulatory documents which has given me a firm grounding
 7 in the way that the agency approaches exposure
 8 assessment.
 9 Q. So you have never designed a dermal exposure
 10 study, for instance?
 11 A. Correct.
 12 Q. What about a dermal penetration study, in case
 13 you view those as different?
 14 A. Same answer.
 15 Q. I'd like to turn now to your expert report
 16 which we've marked as Exhibit 3.
 17 A. Okay.
 18 Q. Would you turn to page 21? I'm sorry, page 20
 19 of your expert report.
 20 A. Okay.
 21 Q. And in this section you've conducted an
 22 analysis of genotoxicity studies relied on by EPA as
 23 compared to those relied on by IARC; is that a fair
 24 characterization?
 25 A. Yes.

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1 Q. For your comparison you used EPA's
 2 September 2016 report titled "Glyphosate Issue Paper:
 3 Evaluation of Carcinogenic Potential"; is that correct?
 4 A. Yes.
 5 Q. You're aware that EPA has published an updated
 6 version of that issue paper in December 2017; correct?
 7 A. Yes, I am.
 8 Q. Why did you use the 2016 report instead of the
 9 2017 report?
 10 A. It's the one that I had done the vast majority
 11 of my analysis with, and I check to -- to -- when the
 12 new -- newer report came out, I didn't recognize very
 13 many changes, and so I just continued to work
 14 with -- with that one.
 15 It also, given that my -- the focus is a
 16 comparison of the genotox database that EPA used and
 17 referred to in their September 2016 report to the IARC
 18 report which came out a few months -- the full Volume
 19 122 monograph that came out roughly at the same time.
 20 So I was -- I felt it was most appropriate
 21 analytically to focus on what those reports said at the
 22 time that they were issued.
 23 Q. Did you check to see whether EPA cited any new
 24 or additional genotoxicity studies in their 2017 report?
 25 A. I think they did a few new ones, yes.

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1 Q. That wasn't important to your analysis?
 2 A. No. I didn't see enough differences to redo
 3 the whole analysis.
 4 MR. FAYNE: I'll mark as Exhibit 6 EPA's 2016
 5 OPP report.
 6 (Exhibit 6 marked for identification.)
 7 MR. KRISTAL: Was this 6, did you say?
 8 MR. FAYNE: 6.
 9 Q. (BY MR. FAYNE:) Is this the EPA report that
 10 you used for your analysis?
 11 A. I can't tell if it's the original or the
 12 updated one, but you'll tell me, I'm sure.
 13 Q. If you look at the front cover, it says
 14 "September 12th, 2016."
 15 A. Yeah.
 16 Q. And that's the version that you used; correct?
 17 A. Yes, that's the version I used.
 18 Q. And in your analysis, you were comparing the
 19 studies that EPA considered in its genotoxicity
 20 assessment in this 2016 report to those considered by
 21 IARC in Volume 112 of its monographs; correct?
 22 A. Correct.
 23 Q. So let's mark Volume 112 as well just so we
 24 have them both in front of us.
 25 MR. FAYNE: So we'll mark Volume 112 of IARC's

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1 monographs as Exhibit 7.
 2 (Exhibit 7 marked for identification.)
 3 MR. KRISTAL: Always nice to unburden yourself,
 4 when you're taking a deposition, of all the documents.
 5 MR. FAYNE: You have no idea.
 6 MR. KRISTAL: I do have an idea.
 7 Q. (BY MR. FAYNE:) In comparing the studies that
 8 EPA -- let me start over. Strike that.
 9 In comparing the genotoxicity studies that EPA
 10 reviewed as compared to those reviewed by IARC, what
 11 were you trying to show?
 12 A. I was simply trying to understand the genotox
 13 database that formed the foundation of EPA's judgment on
 14 genotoxicity, and I also tried to understand the
 15 genotoxicity database that IARC relied on in reaching
 16 their different judgment, and then I compared the two to
 17 see that -- whether the differences in the studies that
 18 EPA reviewed and relied upon were different enough to
 19 explain why EPA reached a diametrically opposed
 20 conclusion on the question of genotoxicity compared to
 21 the conclusion reached by IARC.
 22 Q. Were you trying to show that IARC's review of
 23 the genotoxicity database was more comprehensive?
 24 A. It was obvious that it was more comprehensive
 25 in several ways. It's -- it's -- it has been clear to

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1 me for -- since I began working on this case that the
 2 difference in judgment reached by EPA on the
 3 oncogenicity of glyphosate and glyphosate-based
 4 herbicides relative to the judgment reached by IARC is a
 5 central controversy in the case.
 6 And I -- I wanted to try to understand from a
 7 scientific point of view what might have led the EPA to
 8 reach a different conclusion than IARC, and I designed
 9 my analysis to try to understand what those differences
 10 were.
 11 Q. You testified that it was obvious to you that
 12 IARC's review was more comprehensive in several ways.
 13 What were those ways?
 14 A. They relied -- the IARC working group relied
 15 much more heavily on studies on formulated
 16 glyphosate-based herbicides, whereas the EPA's analysis
 17 did not place really hardly any weight on those. And
 18 also, the IARC working group relied much more
 19 extensively on public literature studies appearing in
 20 peer-reviewed journals.
 21 Q. Any other ways in which the IARC review was
 22 more comprehensive, in your opinion?
 23 A. I think the -- the IARC report is actually a
 24 bit more thorough in discussing the strengths and
 25 weaknesses of individual studies compared to the EPA

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1 report, but it may -- it just may be that the EPA, in
 2 compiling that report, they didn't put in all of the
 3 details in their individual reviews of each of the
 4 studies.
 5 I'm quite sure that there's a probably an EPA
 6 memo in the files of HED, Hazard Evaluation Division, on
 7 all the genotox studies from registrants that they
 8 reviewed, and that would be a 4,000-page document
 9 instead of a 260-page document had they done that.
 10 But that -- that is one -- I thought the
 11 qualitative assessment of the -- of the studies was more
 12 thorough in the IARC review compared to the EPA
 13 document.
 14 Q. But you're not testifying that IARC's review
 15 was necessarily more thorough, just that its write-up
 16 was more thorough. Is that a fair characterization?
 17 A. No, that's not a fair characterization.
 18 Q. But you testified that you're sure that the
 19 health effects division has a memo in its files that's
 20 much longer. So you have no way of knowing one way or
 21 another how thorough the review is; correct?
 22 A. I based my assessment -- my comparative
 23 assessment on these two reports that are presented by
 24 EPA on the one hand and IARC as the culmination of their
 25 systematic and quite extensive reviews of the studies

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1 and the public literature that were available to them
 2 and fell within the guidelines for what they relied on.
 3 Q. Let's turn to Appendix C of your report, which
 4 I believe lays out your methodology; correct?
 5 A. Okay.
 6 Q. And, sorry, I should be more clear. Appendix C
 7 of your expert report, which we had marked as Exhibit 3.
 8 A. Yeah. Okay. I'm there.
 9 Q. So this appendix lays out the methodology used
 10 to compare the IARC report to the EPA report; correct?
 11 A. Yes.
 12 Q. Just to make sure I understand exactly what you
 13 did, you're counting the number of studies cited by IARC
 14 and then counting how many of those studies were
 15 considered by EPA; correct?
 16 A. It's not exactly studies. It's counting the
 17 number of assays included in the core tables produced by
 18 EPA in their report, and then I did essentially the same
 19 analysis of the core tables produced by the IARC working
 20 group.
 21 Several studies report assay results on -- in
 22 more than one cell line. Some studies report assay
 23 results on technical glyphosate and formulated
 24 glyphosate-based herbicides. A few include data on
 25 AMPA.

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1 So the total number of assay results that
 2 appear in both the EPA core tables and the IARC core
 3 tables exceed the number of studies cited.
 4 Q. So just to confirm that I understand what you
 5 just laid out, you're counting the number of assays, not
 6 the number of studies; correct?
 7 A. I'm counting the number of assay -- individual
 8 assay results that the EPA felt appropriate to include
 9 in their core tables based on their review of the
 10 studies.
 11 And if you read the EPA report, they say that
 12 they identified and include in their core tables the
 13 primary results of the study, often as highlighted by
 14 the authors of the study, whether it's a peer-reviewed
 15 study in the literature or a registrant-submitted study.
 16 Q. So you're counting the number of assay results
 17 the EPA put in its core tables and comparing that to the
 18 number of assay results that IARC put in its core
 19 tables; correct?
 20 A. Correct.
 21 Q. To determine how many studies -- or strike
 22 that.
 23 To determine how many assay results were
 24 considered by EPA, you used Tables 5.1 through 5.7 in
 25 the EPA report; correct?

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1 A. Correct.
 2 Q. You didn't refer to any other information in
 3 the report, correct, for purposes of this analysis?
 4 A. Well, in terms of counting the number of assays
 5 in the core tables, yeah, I just used the core tables.
 6 Q. And as you just testified, the only input you
 7 used for your analysis was the core tables; correct?
 8 A. Well, I do address in my analysis the appendix
 9 tables where EPA listed a number of assays on formulated
 10 glyphosate-based herbicides, but they also say quite
 11 clearly that they -- they didn't place any weight or
 12 much weight on them in their analysis.
 13 Q. Could you show me in your analysis where you
 14 identified the appendix tables that EPA referred to on
 15 formulated products?
 16 A. It's probably in my report somewhere.
 17 Q. We can -- you can look for it at a break. I'll
 18 represent to you --
 19 MR. KRISTAL: He's not going to look for it at
 20 a break. If you want him to do it now, a break is for a
 21 break. But he's happy to look for it now, if you'd
 22 like.
 23 THE WITNESS: As you know, I've gone to --
 24 MR. KRISTAL: Is that what you want him to do?
 25 MR. FAYNE: No. That's all right.

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1 MR. KRISTAL: Okay.
 2 Q. (BY MR. FAYNE:) Tables 5.1 through 5.7 in the
 3 EPA report address studies on glyphosate technical;
 4 correct?
 5 A. Correct.
 6 Q. Or pure glyphosate?
 7 A. Probably more appropriate to say glyphosate
 8 technical.
 9 Q. Sure.
 10 A. Because there's no such thing as pure
 11 100 percent glyphosate.
 12 Q. Sure. So we'll refer to it as glyphosate
 13 technical.
 14 A. Yeah. I think that's appropriate.
 15 Q. And to determine how many studies were
 16 considered by IARC, you used Tables 4.1 through 4.6 in
 17 the monographs; correct?
 18 A. Correct.
 19 Q. And those tables address studies on glyphosate
 20 technical, glyphosate-based formulations, and studies on
 21 the glyphosate metabolite AMPA; correct?
 22 A. Correct.
 23 Q. So you're comparing the number of genotoxicity
 24 studies on glyphosate technical that EPA considered to
 25 the number of studies on glyphosate technical,

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1 glyphosate-based formulations and AMPA that IARC
 2 considered --
 3 A. Correct.
 4 Q. -- is that fair?
 5 Can you turn to page 21 of your report,
 6 paragraph 63?
 7 A. Back to there, okay. You said page 21?
 8 Q. Yes, paragraph 63.
 9 A. Got it.
 10 Q. You state, "Of the approximate 120 genotoxicity
 11 studies in all categories cited by IARC, EPA cited about
 12 50 in its 2016 report or about 42 percent of those
 13 considered by IARC."
 14 Did I read that correctly?
 15 A. Yes.
 16 Q. When you say "in all categories cited by IARC,"
 17 you're referring to glyphosate technical,
 18 glyphosate-based formulations, and AMPA; correct?
 19 A. Correct.
 20 Q. Only 55 of those 120 genotoxicity studies cited
 21 by IARC fell into mammalian categories; correct?
 22 A. Yeah. That's in a subsequent paragraph, I
 23 assume.
 24 Q. Yep.
 25 A. Yes, sir.

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1 Q. Yes. That's paragraph 64 where you state that
 2 "Of the 120 studies" --
 3 A. Right.
 4 Q. -- "reviewed by IARC, 55 fell in mammalian test
 5 categories"?
 6 MR. KRISTAL: I think that little squiggly line
 7 means approximately.
 8 THE WITNESS: That's correct.
 9 Q. (BY MR. FAYNE:) Approximately 55; correct?
 10 A. Yes.
 11 Q. You agree that mammalian test categories are
 12 the most relevant to the assessment of glyphosate's
 13 potential to trigger carcinogenic risk in humans;
 14 correct?
 15 A. Yes, I do.
 16 Q. And actually, if you'll turn to page 98 of the
 17 EPA report. And I apologize. I know I'm asking you to
 18 use two different documents here.
 19 A. That's all right. I know right where you're
 20 going.
 21 MR. KRISTAL: Need to ask him about his
 22 expertise in mind reading.
 23 THE WITNESS: Okay. 98.
 24 Q. (BY MR. FAYNE:) So page 98, in the bottom of
 25 that second full paragraph, it states that "Studies

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1 conducted in non-mammalian species (example, worms,
 2 fish, reptiles, plants) were excluded because they were
 3 considered to be not relevant for informing genotoxic
 4 risk in humans."
 5 Do you see that?
 6 A. Actually, I don't. You're talking -- page 98?
 7 Q. Yes, of the OPP report.
 8 MR. KRISTAL: Can you just give us which
 9 paragraph?
 10 MR. FAYNE: It's the bottom of the second full
 11 paragraph.
 12 THE WITNESS: Oh, okay. I was in the bottom
 13 paragraph. I'm sorry.
 14 Q. (BY MR. FAYNE:) So I'll read that again. It
 15 says, "Studies conducted in non-mammalian
 16 species (example, worms, fish, reptiles, plants) were
 17 excluded because they were considered to be not relevant
 18 for informing genotoxic risk in humans."
 19 Do you see that?
 20 A. Yes, I do.
 21 Q. And did I read that correctly?
 22 A. You did.
 23 Q. So EPA excluded studies from its analysis that
 24 were on non-mammalian species; correct?
 25 A. That is correct.

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1 Q. And that's because it concluded that those
 2 studies were not relevant to genotoxic risk in humans;
 3 correct?
 4 A. That was the conclusion reached by EPA, yes.
 5 Q. Do you disagree with that assessment?
 6 A. Yes, I do disagree and so does IARC. And many
 7 other scientists in that genotoxicity assays done in
 8 non-mammalian species lend further insights into the
 9 biological properties and impacts of various chemicals
 10 under review.
 11 I think it's -- there is -- it is widely
 12 accepted that the most relevant studies are done in
 13 mammalian systems, but the IARC working group clearly
 14 felt that the non-mammalian studies were -- added
 15 additional insights and value to the data set.
 16 Q. But you agree that it's widely accepted that
 17 the most relevant studies are the ones that are done in
 18 mammalian test systems; correct?
 19 A. Yes, I do agree with that.
 20 Q. You state that "Of the approximately 55 studies
 21 conducted in mammalian systems that were reviewed by
 22 IARC, EPA considered about 40"; correct?
 23 A. Correct.
 24 Q. And again, in making this determination, you
 25 were looking at Tables 5.1 through 5.7 of the EPA

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1 report; correct?
 2 A. Correct.
 3 Q. So if you'll turn to page -- you're probably
 4 already there -- page 98 of the EPA report.
 5 A. Back to where we were, okay.
 6 Q. Yes. And now we're looking in the first full
 7 paragraph on that page.
 8 A. All right.
 9 Q. It says, "In the current analysis, a fit for
 10 purpose systematic review process was conducted to
 11 identify relevant genotoxicity data from regulatory
 12 studies and published literature, from open sources
 13 (published and unpublished) for both glyphosate
 14 technical and glyphosate-based formulations. Studies
 15 conducted with glyphosate formulations that were
 16 identified and considered relevant for genotoxicity
 17 evaluation are summarized in table form in Appendix F."
 18 Do you see that?
 19 A. Yes.
 20 Q. And then if we turn to Appendix F, which is on
 21 page 214.
 22 A. Yes.
 23 Q. So in Appendix F, there are a number of tables;
 24 correct?
 25 A. Correct.

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1 Q. And these list studies on the
 2 formulated -- genotoxicity studies on the formulated
 3 product that EPA cited in the tables; correct?
 4 A. That they included in the table, correct. In
 5 the tables.
 6 Q. In the tables, correct.
 7 And I haven't counted the studies, but there
 8 are more than 25 or so studies cited in these tables;
 9 correct?
 10 A. Yes.
 11 Q. In reaching your conclusion that EPA considered
 12 only 40 of the approximately 55 studies considered by
 13 IARC, you did not include studies that were cited in
 14 these tables in Appendix F; correct?
 15 A. That's correct.
 16 Q. Had you included those studies, the number
 17 considered by EPA would have been larger than 40;
 18 correct?
 19 A. It would have been inappropriate to do so
 20 because if you continue reading in the same paragraph,
 21 that -- that appears on the top of page 98, you finished
 22 with "Studies" -- this is the last sentence that you
 23 read -- "Studies conducted with glyphosate formulations
 24 that were identified and considered relevant for
 25 genotoxicity evaluation are summarized in table form in

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1 Appendix F. As described in Section 7.0 of this
 2 document, glyphosate formulations are hypothesized to be
 3 more toxic than glyphosate alone. The agency is
 4 collaborating with NTP to systematically investigate the
 5 mechanisms of toxicity of glyphosate and glyphosate
 6 formulations. However, the focus of this section is the
 7 genotoxic potential of glyphosate technical."
 8 So in this passage, the EPA is fairly clearly
 9 saying that they did not place much, if any, weight on
 10 the genotoxicity studies on the formulated products, so
 11 I felt it would be inappropriate for me to include them
 12 as among the studies that EPA considered in its
 13 evaluation since they say right here that they didn't
 14 consider them.
 15 MR. FAYNE: I'll move to strike that answer as
 16 non-responsive.
 17 MR. ESFANDIARY: The answer will stand.
 18 Q. (BY MR. FAYNE:) The question was, had you
 19 included --
 20 THE REPORTER: Could you repeat?
 21 MR. ESFANDIARY: I said the answer will stand.
 22 Q. (BY MR. FAYNE:) The question was, had you
 23 included these studies in the analysis, the number of
 24 studies considered by EPA as compared to IARC would have
 25 been higher; correct?

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1 A. If I had done that, yeah, it would have gone
 2 up.
 3 MR. KRISTAL: Are you at a somewhat clear
 4 breaking point? We've been going a little over an hour.
 5 I'd like to take a break. If you have a question or
 6 two, that's okay.
 7 MR. FAYNE: Sure. We can take a break.
 8 MR. KRISTAL: Okay.
 9 VIDEOGRAPHER: Off the record at 9:08 a.m.
 10 (A brief recess was had.)
 11 VIDEOGRAPHER: Back on the record at 9:27 a.m.
 12 Q. (BY MR. FAYNE:) Dr. Benbrook, we've been
 13 discussing your analysis of the EPA review of
 14 genotoxicity studies as compared to IARC; correct?
 15 A. Yes.
 16 Q. And we had just been talking about the tables
 17 in Appendix F of the EPA report; correct?
 18 A. Yes.
 19 Q. I'd like to turn your attention now to
 20 Appendix D of the EPA report, and that's on page 196.
 21 A. Yes.
 22 Q. Appendix D of the EPA report is a list of
 23 studies assigned a low quality ranking and not evaluated
 24 in detail; correct?
 25 A. That's what it says, yes.

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1 Q. In reaching your conclusion that EPA considered
 2 only 40 of the approximately 55 studies cited reviewed
 3 by IARC, you did not include the studies cited by EPA in
 4 Appendix D; correct?
 5 A. No, I did not, because the EPA said that they
 6 didn't consider them to be of adequate scientific
 7 quality.
 8 Q. Would you agree that these are studies that EPA
 9 considered but then assessed as low quality?
 10 A. I think the EPA considered that they were low
 11 quality, and so they didn't factor in the results of the
 12 studies one way or the other.
 13 Q. But you agree that EPA would have had to review
 14 and evaluate the studies to determine that they were of
 15 low quality; correct?
 16 A. They would have had to do that, correct.
 17 Q. And you testified previously that you're sure
 18 that there's other documents in the record, you know, a
 19 4,000-page memorandum that might discuss in more detail
 20 EPA's underlying reasoning for its review; correct?
 21 A. Of the different genotoxicity studies?
 22 Q. Correct.
 23 A. Yes.
 24 Q. And so in that document or that type of
 25 document is where EPA might have set forth its analysis

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1 as to why these studies were low quality; correct?
 2 A. One would presume that they would do that, but
 3 I would need to look at them to see, you know, what
 4 precise reason they cited in each one of them.
 5 Q. You do not know one way or the other whether
 6 there's a document in the EPA record in which they lay
 7 out in detail their review of these studies listed in
 8 Appendix D; correct?
 9 A. I made no attempt to find such documents.
 10 Q. So now let's turn to paragraph 65 of your
 11 report, which is on page 65. I apologize. It's on
 12 page 22. I thought that couldn't be right.
 13 A. Okay. Paragraph 65.
 14 Q. Paragraph 65, correct.
 15 MR. KRISTAL: I was going to say those are some
 16 long paragraphs.
 17 MR. FAYNE: Yeah.
 18 Q. (BY MR. FAYNE:) You state that of the five
 19 studies on, quote/unquote, exposed humans reviewed by
 20 the IARC Working Group, three were regarded as positive.
 21 These studies were given little or no weight by EPA
 22 because they entailed exposures to formulated GBHs --
 23 which stands for glyphosate-based herbicides -- not
 24 technical glyphosate, the focus of EPA's review.
 25 Did I read that correctly?

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1 A. Yes, you did.
 2 Q. And I'm correct that "GBHs" refers to
 3 glyphosate-based herbicides; correct?
 4 A. Yes, you are.
 5 Q. So turning to the IARC monograph, page 47.
 6 A. Did you say page 47?
 7 Q. Page 47, yes, Table 4.1.
 8 A. Okay. I have it.
 9 Q. Are these the five studies in exposed humans
 10 that you're referring to in paragraph 65 of your report?
 11 A. They are.
 12 Q. And if you look at the list, it shows an assay
 13 result from Paz-y-Mino, et al.?
 14 A. Correct.
 15 Q. That's P-A-Z dash Y dash M-I-N-O, et al., 2007.
 16 Assay result from Paz-y-Mino, et al., from 2011?
 17 A. Correct.
 18 Q. An assay result from Bolognesi et al., 2009?
 19 A. Correct.
 20 Q. And two more assay results from Bolognesi, et
 21 al., 2009; correct?
 22 A. Correct.
 23 Q. If you could look back to Appendix D of the EPA
 24 report now.
 25 MR. KRISTAL: What page was that?

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1 MR. FAYNE: That was page 196.
 2 Q. (BY MR. FAYNE:) And again, Appendix D is the
 3 list of studies that EPA assigned a low quality ranking
 4 to.
 5 A. Okay.
 6 Q. Do you see here that EPA listed in Appendix D
 7 the Bolognesi, et al., 2009, the Paz-y-Mino, et al.,
 8 2007, and the Paz-y-Mino, et al., 2011? Correct?
 9 A. I do see that, yep.
 10 Q. So EPA considered these five studies to be of
 11 low quality; correct?
 12 A. That's what they say in Appendix D.
 13 Q. In other words, EPA considered these studies
 14 but then did not assess them in detail because in EPA's
 15 view, they were low quality studies; correct?
 16 MR. KRISTAL: Objection.
 17 A. That's essentially correct, yes.
 18 Q. So now let's look at paragraph 9(a) of your
 19 report which is on page 7.
 20 A. 9(a)?
 21 Q. Yes. Of your report. You'll see on page 7 you
 22 have a paragraph 9 -- I'm sorry.
 23 A. All right. The (a) got me confused. All
 24 right. So paragraph 9(a) on page 7. Okay.
 25 Q. So you state here that "IARC placed heavy

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1 weight on three studies of human populations exposed to
 2 glyphosate-based herbicides that displayed, according to
 3 the IARC Working Group, strong evidence of direct damage
 4 to human DNA."
 5 Do you see that?
 6 A. Correct.
 7 Q. Are you referring to those same three or five
 8 studies, however you want to characterize it? The
 9 Bolognesi 2009, Paz-y-Mino 2007, and Paz-y-Mino 2011?
 10 A. I'm actually referring to the narrative section
 11 in the summary report -- the summary report section of
 12 the IARC report where they present their overall
 13 analysis of the -- of the -- of the genotox -- or their
 14 decision to classify glyphosate or glyphosate-based
 15 herbicides as probable human carcinogens.
 16 And in its Section 6 of the IARC report that
 17 begins on page 78 of IARC Monograph 112, in the
 18 Section 6.4 on the rationale, the first bulleted item,
 19 "There is strong evidence that exposure to glyphosate or
 20 glyphosate-based formulations is genotoxic based on
 21 studies in humans in vitro and studies in experimental
 22 animals." And then they go on to say, "One study in
 23 several communities in individuals exposed to
 24 glyphosate-based formulations also found chromosomal
 25 damage in blood cells. In this study, markers of

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1 chromosomal damage (micronucleus formation) were
 2 significantly greater after exposure than before
 3 exposure to the same individuals."
 4 This is where the IARC Working Group highlights
 5 the studies on DNA damage in exposed human populations.
 6 It's not -- it's not -- I'm not able to definitively say
 7 which of those -- those positive studies they're
 8 referring to, but it's certainly one of them.
 9 And because of their highlighting this aspect
 10 of the data set in their summary statement, it -- it
 11 was -- it was clear to me that they both regarded the
 12 studies as adequately conducted and the findings as
 13 important.
 14 Q. Perhaps you didn't understand my question. I'm
 15 just trying to understand what are the three studies
 16 that you say IARC placed heavy weight on?
 17 A. The three positive studies and the direct
 18 damage to DNA table --
 19 Q. And are those --
 20 A. -- that we were just talking about.
 21 Q. So the Bolognesi 2009, the Paz-y-Mino 2007 --
 22 A. Correct.
 23 Q. -- and the Paz-y-Mino 2011?
 24 A. Right.
 25 Q. And as we discussed previously, you agree that

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1 EPA placed little weight on these studies because it
 2 assessed them to be of low quality; correct?
 3 A. No. I think -- well, I think they -- in
 4 addition to them placing them in Appendix D, they say
 5 quite clearly in the report that their assessment of the
 6 genotoxicity of glyphosate is based on studies on
 7 glyphosate technical and they did not review or place
 8 weight on the studies on formulated product, whether
 9 they were high quality or low quality.
 10 Q. But one reason that they excluded these studies
 11 from their analysis is because they assessed them to be
 12 low quality; correct?
 13 MR. KRISTAL: Objection.
 14 A. As I -- as I said, you know, they -- they state
 15 clearly in their report that their focus was on studies
 16 on glyphosate technical, so this certainly suggests to
 17 me that their assessment of the studies on -- on
 18 formulated glyphosate-based herbicides was not as
 19 thorough and certainly there was not as much weight
 20 placed on them.
 21 Q. You mentioned previously an NTP review that
 22 was -- that EPA was going to partner with NTP to
 23 evaluate studies on glyphosate-based formulation;
 24 correct?
 25 A. It's not exactly partner. It's the -- I think

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1 the EPA has requested that the NTP conduct a set of
 2 genotox assays on technical glyphosate and
 3 glyphosate-based herbicides to further inform the
 4 differential toxicity between glyphosate technical and
 5 formulated glyphosate-based herbicides.
 6 Q. If you turn to page 141 of the EPA report.
 7 A. Okay.
 8 Q. The Section 7.0 is labeled "Collaborative
 9 Research Plan for Glyphosate and Glyphosate
 10 Formulations"; correct?
 11 A. Correct.
 12 Q. And it states in the second paragraph that "The
 13 agency has been collaborating with the NTP division of
 14 the National Institute of Environmental Health Sciences
 15 to develop a research plan"; correct?
 16 A. Correct.
 17 Q. So EPA is working collaboratively with the NTP
 18 division to develop a research plan; correct?
 19 A. To develop the research plan, but NTP is
 20 doing -- has done the studies.
 21 Q. And then if you turn to page 142.
 22 MR. KRISTAL: Of?
 23 MR. FAYNE: Of the EPA report. I'm sorry.
 24 MR. KRISTAL: Thank you.
 25 THE WITNESS: Next page, in other words.

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1 Q. (BY MR. FAYNE:) Yes, the next page under the
 2 graphic. The last sentence of that paragraph states
 3 that "However, when members of an NTP work group looked
 4 at the available data included in the IARC review, the
 5 group did not agree with IARC, but the data provided
 6 strong or clear evidence for either genotoxicity or
 7 induction of oxidative stress given protocol
 8 deficiencies that could produce questionable results."
 9 Did you see that?
 10 A. Yes. You read that correctly.
 11 Q. So you agreed that the NTP work group, at least
 12 based on this preliminary review, did not agree with
 13 IARC on the studies of -- genotoxicity studies of
 14 formulated product; correct?
 15 A. This is -- this is EPA's characterization of,
 16 I'm assuming, interactions that they had with the
 17 scientists at NTP, so take EPA at their word, what they
 18 reported.
 19 Q. So you agree that EPA's view, based on its
 20 discussions with the NTP group, is that NTP did not
 21 agree with IARC's analysis of the genotoxicity data on
 22 glyphosate-based formulations; is that fair?
 23 A. Well, there's -- there is -- that -- this
 24 assessment and the discussions that the EPA had with NTP
 25 was no doubt specific to individual assays or individual

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1 study results. It's hard to say exactly what the
 2 details of those conversations were, but the -- you
 3 know, this -- this states that NTP felt that there was
 4 some methodological issues with some of the assays, and
 5 they apparently felt that the IARC Working Group reached
 6 some judgments based on some of the studies that the NTP
 7 scientists reviewed that they didn't have the same level
 8 of confidence in. So that -- you know, that's what I
 9 take it to mean.
 10 Q. Okay. So let's turn back to your report, if we
 11 could, and where we left off was paragraph 9(a). I want
 12 to go to the next page, which is paragraph 9(b).
 13 A. Okay.
 14 Q. You state, "I also conclude that EPA's admitted
 15 failure to seriously assess the approximate 70 public
 16 literature studies on the genotoxicity of formulated
 17 glyphosate-based herbicides is why the agency errantly
 18 determined that 'glyphosate' is likely not genotoxic."
 19 Do you see that?
 20 A. Correct.
 21 Q. Did I read that correctly?
 22 A. Yes, you did.
 23 Q. In other words, your opinion is that a key
 24 difference between the EPA review and the IARC review is
 25 that IARC reviewed studies on glyphosate-based

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1 formulations; is that a fair characterization?
 2 A. Several of the studies reviewed and given
 3 considerable weight by the IARC Working Group were
 4 studies done on formulated glyphosate-based herbicides
 5 that were not reviewed or given heavy weight by EPA,
 6 yeah. Correct.
 7 Q. And in your opinion, that explains -- that's
 8 part of the explanation as to why EPA and IARC reached
 9 different determinations on the genotoxicity of
 10 glyphosate and glyphosate-based formulations; correct?
 11 A. Yes, sir.
 12 Q. And just to restate that slightly, that -- in
 13 your view, that's a primary reason why IARC found strong
 14 evidence of genotoxicity, whereas EPA concluded that
 15 glyphosate is not genotoxic; correct?
 16 A. Correct.
 17 MR. FAYNE: Mark this as Exhibit 8. Yep.
 18 (Exhibit 8 marked for identification.)
 19 Q. (BY MR. FAYNE:) I've marked as Exhibit 8 a Q
 20 and A on glyphosate prepared by the International Agency
 21 For Research on Cancer in March 2016.
 22 A. Yep.
 23 Q. Have you seen this document before?
 24 A. No. I don't believe I have.
 25 Q. Can I just look at the copy I gave you? I'm

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1 sorry. I just want to make sure that I gave you the
 2 right one.
 3 So if you look at the first bold question on
 4 page 1.
 5 MR. KRISTAL: Well, I would ask that
 6 Dr. Benbrook, since he just said he doesn't think he
 7 read it, that he'd like to --
 8 THE WITNESS: May I read it, please?
 9 MR. KRISTAL: He should have the opportunity to
 10 read it before fielding your question.
 11 MR. FAYNE: Absolutely.
 12 MR. KRISTAL: Thank you.
 13 MR. FAYNE: And, Dr. Benbrook, you're welcome
 14 to read the entire thing, but I'm only going to ask you
 15 questions about the first page and the first question on
 16 the second page.
 17 THE WITNESS: Okay.
 18 MR. FAYNE: The rest of it doesn't relate to
 19 genotoxicity studies, but feel free to take your time.
 20 THE WITNESS: Okay.
 21 So you're just going to ask me about the first
 22 question on the second page and that's it?
 23 MR. FAYNE: The first page and the first
 24 question on the second page, correct.
 25 THE WITNESS: Okay. I've read them now.

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1 Q. (BY MR. FAYNE:) So the first question on the
 2 first page states, "Could the carcinogenic effects of
 3 glyphosate be related to the other chemicals in the
 4 formulations?" And IARC responds "No."
 5 Did I read that correctly?
 6 A. Yes.
 7 Q. And then if you look at the second paragraph of
 8 that answer, IARC explains that "For the experimental
 9 studies on 'pure glyphosate,' the monograph concluded
 10 that the evidence of causing cancer in experimental
 11 animals was sufficient and the evidence for causing
 12 genotoxicity was strong."
 13 Did I read that correctly?
 14 A. Yes, you did.
 15 Q. And then turning to the next page, the question
 16 asks, "Could the co-formulants be the cause of the
 17 genotoxic effects reported in the IARC Monograph?"
 18 Did I read that correctly?
 19 A. Yes, you did.
 20 Q. And IARC responds, "With regard to
 21 genotoxicity, the IARC Working Group evaluated" studies
 22 on -- "studies of 'pure glyphosate' as well as studies
 23 of glyphosate-based formulations. The working group
 24 reached the same hazard conclusion for glyphosate and
 25 for its formulations: they concluded that the evidence

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1 for genotoxicity was 'strong' for glyphosate and
 2 'strong' for glyphosate formulations."
 3 Did I read that correctly?
 4 A. Yes, you did.
 5 Q. In other words, IARC did not find a material
 6 difference between the genotoxicity evidence on
 7 glyphosate and the genotoxicity evidence on
 8 glyphosate-based formulations; is that a fair
 9 characterization?
 10 A. No.
 11 Q. Why not?
 12 A. They -- they state clearly here that
 13 they -- they characterized and believe that the evidence
 14 is strong in both the case of pure or technical
 15 glyphosate and in the case of glyphosate-based
 16 formulations. There's no implied sort of comparison
 17 between the two that they're both strong.
 18 Q. Okay. So let me rephrase it.
 19 They categorized both glyphosate and
 20 glyphosate-based formulations in the same category for
 21 genotoxicity risk; is that fair?
 22 A. Not precisely. They -- they characterized the
 23 data that was available to them on the genotoxicity of
 24 glyphosate technical as strong in that it pointed to
 25 genotoxicity effects. Independent of that, they

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1 evaluated the evidence on formulated glyphosate-based
 2 herbicides and also concluded that that evidence was
 3 strong, and that's what they're saying here. It's a
 4 slight distinction, but...
 5 Q. You would agree that IARC reviewed the evidence
 6 on technical glyphosate and determined that the
 7 genotoxic risk -- that there was strong evidence of
 8 genotoxic risk; correct?
 9 A. Yes.
 10 Q. EPA reviewed the evidence on technical
 11 glyphosate and reached the opposite conclusion; correct?
 12 A. The EPA's conclusion is stated clearly, and it
 13 says that -- the EPA reported that based on their review
 14 of data on the genotoxic effects of glyphosate technical
 15 and current typical levels of exposure, that
 16 there's -- there's not strong evidence of a mutagenic
 17 effect.
 18 I think they used the word "via the oral
 19 route." So their conclusion is limited to glyphosate
 20 technical, and it's contingent on levels of exposure --
 21 typical levels of exposure through the oral route or
 22 dietary.
 23 Q. EPA has never found that glyphosate is
 24 genotoxic; correct?
 25 A. That's actually a complicated question. I

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1 mean, EPA renders judgments about the genotoxicity of
 2 pesticides in a lot of different places at a lot of
 3 different times. Sometimes they'll review an individual
 4 study and say that there's evidence of genotoxicity in
 5 this one study, but then based on other studies and
 6 their weight-of-evidence evaluation, they may say that
 7 overall their judgment is that it's not.
 8 Certainly this September 2016 report that we've
 9 been talking about I think is an accurate reflection of
 10 EPA's views at the time, and I believe it's still their
 11 view. So this would -- I would certainly agree with you
 12 that this is the most relevant contemporary summary of
 13 EPA's weight of evidence judgment about the overall
 14 database.
 15 Q. You would agree that EPA's current judgment,
 16 which is consistent with its longstanding judgment, is
 17 that the weight of the evidence does not show glyphosate
 18 technical to be genotoxic; correct?
 19 A. Based on typical levels of dietary exposure,
 20 that's -- that's the conclusion that they reached, yes.
 21 Q. Or mutagenic?
 22 A. Yes.
 23 MR. KRISTAL: Objection to form.
 24 A. Correct. The term -- I think EPA and many
 25 scientists use the terms "genotoxic" and "mutagenic" as

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1 roughly comparable.
 2 Q. EPA has never made a weight-of-the-evidence
 3 determination that glyphosate is genotoxic; correct?
 4 A. Not that I'm aware of.
 5 Q. Turning back to the Q and A document from IARC.
 6 A. Okay.
 7 Q. As we were discussing previously, IARC reviewed
 8 the evidence -- genotoxicity evidence on glyphosate and
 9 found that there was strong evidence of genotoxicity,
 10 reviewed the genotoxicity evidence on glyphosate-based
 11 formulation and found that there was strong evidence of
 12 genotoxicity; correct?
 13 A. Correct.
 14 Q. Does that change your opinion that a key reason
 15 that IARC found strong evidence of genotoxicity is that
 16 it considers studies on glyphosate-based formulations
 17 whereas EPA did not?
 18 A. No, it doesn't change my opinion.
 19 Q. Why not?
 20 A. Because the -- the impact in IARC's overall
 21 evaluation of the genotox database of the studies in
 22 directly exposed human populations and the various in
 23 vitro studies with formulated glyphosate-based
 24 herbicides were, you know, among the studies that in
 25 their narrative discussion and in their summary

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1 rationale statement, that the IARC Working Group pointed
 2 to as very, very important.
 3 So, you know, I -- I think it's impossible to
 4 read the IARC Working Group discussion of the genotox
 5 database without being fully aware that the working
 6 group placed considerable weight in its overall judgment
 7 on the studies involving the formulated glyphosate-based
 8 herbicides.
 9 And, you know, I think, you know, as I intimate
 10 in my -- in my expert report, had IARC not looked at any
 11 of the formulated studies, it still may have -- as it
 12 said, they felt that the data was strong on glyphosate,
 13 pure glyphosate or glyphosate technical, but still I
 14 think it had -- the data on formulated glyphosate-based
 15 herbicides, particularly data that arose from sort of
 16 real-world studies of exposed populations, were very
 17 important in their overall evaluation.
 18 Q. I want to parse that a little bit. Is it your
 19 contention that IARC relied on studies, genotoxicity
 20 studies of formulated products, in reaching its
 21 conclusion that glyphosate technical was genotoxic?
 22 A. Well, that's an interesting question, and it's
 23 a very complex question. I mean, both in the case of
 24 the EPA and in IARC, there -- there is -- there is an
 25 appropriate consideration of insights and data from

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1 studies on glyphosate-based formulations in assessing
 2 glyphosate technical and vice versa. So it's -- it
 3 would be artificial to build a fence between the two
 4 data sets and say that they're completely irrelevant to
 5 assessment of the other one.
 6 So I -- you know, I think they -- they
 7 were -- they took into account the overall data on both
 8 glyphosate technical and formulated glyphosate-based
 9 herbicides.
 10 Q. What are you relying upon for your contention
 11 that they took into account the overall data on both
 12 glyphosate technical and formulated herbicides in
 13 determining that glyphosate technical was genotoxic?
 14 A. Just reading the report.
 15 Q. So that just comes from this Monograph 112?
 16 A. Volume 112.
 17 Q. That's where your --
 18 A. Correct.
 19 Q. Let's turn back to your report. I'm sorry,
 20 let's turn to the OPP report, page 100.
 21 A. Okay. I have it.
 22 Q. And what I'm referring to are Tables 5.1
 23 through 5.7, and they go from page 100 through --
 24 A. 120 --
 25 Q. Looks like page 125, I believe.

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1 A. Yeah, I was going to say 126, but my memory was
 2 not exactly correct.
 3 Q. If one were to count up all the studies listed
 4 in these tables, it would be significantly more than 40;
 5 correct?
 6 A. If one were to count up the assays.
 7 Q. The assays, yes.
 8 A. Yes. Correct.
 9 Q. And the reason I'm referring to 40 is that you
 10 state in your report that EPA considered 40 of the
 11 approximately 55 studies of glyphosate in mammalian
 12 systems that IARC considered; correct?
 13 A. Correct.
 14 Q. So have you counted up how many studies EPA
 15 cited in these tables?
 16 A. Yes.
 17 Q. How many?
 18 A. I don't recall the number off the top of my
 19 head. I've done a very thorough analysis of Tables 5.1
 20 to 5.7 and a comfortable analysis of the IARC tables.
 21 Q. I'll represent to you that the number is 84,
 22 that there are 84 --
 23 A. Assays.
 24 Q. -- assays listed in Tables 5.1 through 5.7.
 25 Does that sound about right?

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1 A. Uh-huh. It does.
 2 Q. And by my count, if you look at the comparable
 3 tables in the IARC report, they considered 21 assay
 4 results on glyphosate technical.
 5 Does that sound about right?
 6 A. No. I don't think so.
 7 Q. Okay. Do you want to -- we can go to the
 8 report, if you'd like. So if you look at the IARC
 9 monograph.
 10 A. Let's see. I'm going to try to --
 11 Q. And I should say 21 studies on glyphosate
 12 technical in mammalian systems.
 13 A. Oh, okay. Well, that's slightly different.
 14 Q. I apologize, yes. That was my --
 15 A. That sounds about right.
 16 Q. Okay. So just to restate that, so IARC looked
 17 at approximately 21 studies on glyphosate technical in
 18 mammalian systems; correct?
 19 A. Correct.
 20 Q. So EPA reviewed roughly four times as many
 21 studies on glyphosate technical in mammalian systems;
 22 correct?
 23 A. Correct.
 24 Q. In your analysis, you didn't take into account
 25 studies cited by EPA but not by IARC; correct?

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1 Your analysis didn't look at studies cited by
 2 EPA but not IARC; correct?
 3 A. Yes, I did.
 4 Q. Well, when you're counting up the studies and
 5 saying EPA considered 40 of the approximately 55, you're
 6 only looking at studies that IARC considered and then
 7 evaluating whether EPA considered them, as well;
 8 correct?
 9 A. Can we parse that out a little bit?
 10 Q. Sure. In your report you state that
 11 IARC -- strike that.
 12 In your report you state that EPA considered 40
 13 of the approximately 55 studies in mammalian systems
 14 that IARC considered; correct?
 15 A. Yes.
 16 Q. Those 40 studies are only ones that IARC
 17 considered; correct?
 18 A. Those are 40 studies that IARC considered and
 19 predominantly peer-reviewed published studies.
 20 Q. So in that calculation, you're not taking into
 21 account studies that EPA considered but IARC did not;
 22 correct?
 23 A. I -- I didn't report that number, but I could
 24 have. It's in the -- you know, it would be -- it would
 25 come out of the tables I generated, yes.

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1 Q. So you didn't report that number in the results
 2 of your analysis; correct?
 3 A. Not in -- not in the expert report, no.
 4 Q. Why not?
 5 A. I don't know. I mean, I was trying to be as
 6 thrifty as possible with the length of the report.
 7 Q. So in your opinion, it wasn't important to your
 8 analysis that EPA had considered more studies on
 9 glyphosate technical in mammalian systems than IARC did?
 10 A. It was certainly not important that EPA had
 11 considered approximately 23 or 24 reverse bacterial
 12 mutation studies on glyphosate technical. One of the
 13 features of the -- surprising features of the genotox
 14 database that EPA reviewed was that bacterial reverse
 15 mutation studies account for almost half of the overall
 16 number of studies across all categories of genotoxicity
 17 when EPA data requirements call for only one study, one
 18 bacterial reverse mutation study in technical using a
 19 pure -- pure technical active ingredient.
 20 So it was clear that, for whatever reason,
 21 Monsanto and the other registrants conducted
 22 approximately two dozen reverse bacterial mutation
 23 studies and included those in the evaluation. And it's
 24 certainly my assessment and, I think, the assessment of
 25 the IARC Working Group and others that those additional

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1 negative bacterial reverse mutation studies didn't add a
 2 lot of new information to the database.
 3 Q. I just, while we were sitting here, counted it
 4 up and it looks like there are 27 bacterial reverse
 5 mutation assays cited in the EPA report.
 6 Does that sound about right?
 7 A. Sounds about right, yep.
 8 Q. So that means there's another 57 studies,
 9 genotoxicity studies on glyphosate technical, that were
 10 cited in the EPA report?
 11 A. I'd have to pull out all my detailed sheets to
 12 get the exact number, but -- and don't forget, you know,
 13 in -- in some of the questions and some of my analysis,
 14 I -- I do include the bacterial reverse mutation studies
 15 on the formulated product too. So it gets -- it's a lot
 16 of numbers and a lot of categories and it can be a
 17 little confusing.
 18 Q. Understood. But there are -- would you agree
 19 that there are a large number of studies -- strike that.
 20 Would you agree that there are more than 40
 21 studies that EPA considered on glyphosate technical that
 22 IARC did not consider?
 23 A. Yes, I would agree with that.
 24 Q. Would you agree that there are more than 50
 25 studies on glyphosate technical that EPA considered that

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1 IARC did not consider?
 2 A. I'd have to check. That's getting right up at
 3 the precise number.
 4 Q. You state in Appendix C of your report -- and I
 5 don't think you need to turn there, but feel free --
 6 that you recorded the results in an Excel spreadsheet.
 7 A. Yes.
 8 Q. Do you still have those files?
 9 A. Yes.
 10 Q. Is it a single file or multiple files?
 11 A. It's a single workbook, and there is a
 12 worksheet for each of the tables, and the worksheets are
 13 linked together analytically so that the counts are
 14 automatically done, the summary counts. And I think I
 15 explain in the Appendix C methodology section the
 16 information that I moved into the spreadsheets.
 17 Q. Have you produced those spreadsheets in this
 18 litigation, as far as you're aware?
 19 A. No.
 20 Q. But you'd be able to do that if asked?
 21 A. Yes.
 22 Q. In your report you also performed what I read
 23 as a separate analysis of regulatory genotoxicity
 24 studies as compared to genotoxicity studies published in
 25 peer-reviewed journals; is that accurate?

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1 A. Yes.
 2 Q. You state in your report that you identified
 3 registrant-commissioned regulatory studies from EPA's
 4 2016 report and Monsanto-commissioned genotoxicity
 5 review articles; correct?
 6 A. Yes.
 7 Q. Which Monsanto-commissioned genotoxicity review
 8 articles are you referring to?
 9 A. Williams 2000, Kier 2013, Kier and Kirkland
 10 2015 and Brusick, et al., 2017. I think Heydens too,
 11 Heydens, et al., 2018.
 12 Q. How did you determine that a study was a
 13 registrant-commissioned regulatory study?
 14 A. By a lot of work, a lot of work. So all of the
 15 registrant studies that are in the September 2016 EPA
 16 report have a full bibliographic citation, and all of
 17 the registrant studies have an MRID number and none of
 18 the public studies do. So that was a primary way.
 19 Another way that I did it was that the same
 20 scientist has conducted multiple of the registrant
 21 studies, so I assumed that if a scientist -- if I had in
 22 the bibliography MRID -- MRID numbers for six studies
 23 that this particular scientist did and there was another
 24 study referenced in the table but it didn't have
 25 an -- it didn't cite an MRID number, I assumed that it

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1 was still a registrant-submitted study, particularly in
 2 the absence of a -- in the bibliographic entry, a
 3 reference to a journal where it was published.
 4 Between the bibliography in the IARC report,
 5 the bibliography in the EPA report and in searching on
 6 the internet, I -- I was able to accurately identify, I
 7 believe, the registrant-submitted studies compared to
 8 the peer-reviewed studies.
 9 Q. You're drawing a distinction between
 10 registrant-submitted studies and peer-reviewed studies?
 11 A. Yes, sir.
 12 Q. It's possible, right, that a registrant, such
 13 as Monsanto or some other company could conduct a study
 14 and submit it to a peer-reviewed journal; correct?
 15 A. Yes.
 16 Q. In those cases, did you count that as a
 17 registrant study or a peer-reviewed study?
 18 A. As I explained before, the spreadsheets were
 19 built off of the core tables in the EPA report and in
 20 the IARC report, so if a study was in -- in the
 21 bacterial reverse mutation table in the EPA report, I'd
 22 move that study in and then I determined whether it was
 23 a registrant study, submitted study, or whether it
 24 appeared in a peer-reviewed journal.
 25 Now, it's possible that there may have

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1 been -- you know, it's possible that there may have been
 2 a study where there was a registrant-submitted version
 3 of it and then the scientist also published it, but
 4 I -- I don't think that's the case because if that had
 5 been the case, such a study would have been referenced
 6 in either the Williams, et al., review or the Kier and
 7 Kirkland review or the Brusick review, and I'm sure that
 8 they would have referenced the peer-reviewed version of
 9 it, and I didn't find any -- I don't recall any examples
 10 of that off the top of my head. Although, you know,
 11 it's possible that I might have missed one.
 12 Q. And I'm just trying to understand. If Monsanto
 13 conducts a study not for regulatory purposes, they
 14 conduct a study and submit it to a peer-reviewed
 15 journal, what category did you put it in, the regulatory
 16 study side or the published literature side?
 17 A. I know of no such study.
 18 Q. Let's say any registrant, not Monsanto. Any
 19 company conducts a study, they submit it to a
 20 peer-reviewed journal, does that go in the registrant
 21 side or the peer reviewed?
 22 A. It goes in the peer-reviewed side. And there
 23 would be -- there would be a citation to it with the
 24 volume of the journal and it would be a public study.
 25 Q. Are you aware of any studies on the registrant

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1 regulatory genotoxicity study side that does not have an
 2 MRID number?
 3 A. I can't cite any right off the top of my head.
 4 The -- I think the EPA is pretty thorough in putting
 5 MRID numbers on all registrant-submitted studies.
 6 Q. So would it be fair to say, at least sitting
 7 here today, you're not aware of any of the studies that
 8 you considered registrant-submitted that did not have an
 9 MRID number?
 10 A. Actually, I think there are a few in the
 11 bibliography, and these were the ones that I struggled
 12 with where, for some reason, in the bibliographic
 13 citation in the EPA report there wasn't an MRID number.
 14 But in those cases, I searched further, and
 15 often I was able to find a citation in usually Williams,
 16 et al., because Williams, et al., is a paper that came
 17 out in 2000 and summarized the early -- the early
 18 studies that Monsanto conducted and submitted to the
 19 agency.
 20 I think most of these issues about the
 21 completeness of the bibliographic citation and the EPA
 22 report were on 1980s -- circa 1980s studies that were
 23 done and, you know, I think sometimes EPA was reminded
 24 of them or became aware of them through the Williams, et
 25 al., paper, and they sort of say that in their report.

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1 Q. Presumably you have a spreadsheet or other
 2 record of which studies you put in the
 3 registrant-submitted category and which studies you put
 4 in the public literature category; is that correct?
 5 A. Of course. That's a data field in the -- in
 6 the workbook.
 7 Q. So from that report, one would be able to
 8 identify how you categorize any particular study;
 9 correct?
 10 A. Yes.
 11 Q. And again, that's something that you still have
 12 available on your computer?
 13 A. Yes.
 14 MR. KRISTAL: Hasn't been deleted in the last
 15 two minutes?
 16 MR. FAYNE: We're talking about a different
 17 analysis. I'm not sure we've established that it's the
 18 same spreadsheet.
 19 MR. KRISTAL: Fair enough.
 20 Q. (BY MR. FAYNE:) Is it the same spreadsheet?
 21 A. It's not the same spreadsheet. It's in the
 22 same workbook.
 23 Q. Different tab of the same workbook?
 24 A. Correct.
 25 Q. So you also state that you've identified

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1 studies published in the public literature; correct?
 2 A. Correct.
 3 Q. And these are studies that were cited either in
 4 EPA's 2016 report or the IARC monograph?
 5 A. Correct.
 6 Q. Did you find any other -- strike that.
 7 Other than the studies cited in EPA's 2016
 8 report and in the IARC monograph, did you consider any
 9 other studies in the public literature as part of this
 10 analysis?
 11 A. If you -- if by "this analysis" you mean my
 12 comparison of the genotox studies cited in the
 13 September 2016 EPA report relative to Volume 122 IARC
 14 monograph, the answer would be yes.
 15 Q. No. That wasn't my question. So my
 16 question -- and maybe it will be helpful to turn to your
 17 report.
 18 A. Let me explain.
 19 Q. Please.
 20 A. When you say "this analysis," what do you mean?
 21 Do you mean my overall analysis of genotoxicity or my
 22 analysis of the comparing the two?
 23 Q. What I'm referring to is your analysis of what
 24 you referred to as registrant-commissioned studies
 25 versus public-literature studies on genotoxicity.

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1 A. Okay.
 2 Q. So I am trying to understand how you identified
 3 which studies were, quote/unquote, public-literature
 4 studies.
 5 MR. KRISTAL: So do you want to ask the
 6 question again --
 7 MR. FAYNE: Yes.
 8 MR. KRISTAL: -- now that --
 9 Q. (BY MR. FAYNE:) So with that understanding,
 10 you cite that -- you state that studies cited either in
 11 EPA's 2016 report or the IARC monograph were considered
 12 public lit -- strike that.
 13 You identified public-literature studies from
 14 EPA's 2016 report and the IARC monograph; correct?
 15 A. And the five literature reviews done by
 16 Monsanto.
 17 Q. If you could turn to page 68 of your report.
 18 A. Paragraph 68 or page?
 19 Q. Paragraph 68. Thank you.
 20 A. Okay.
 21 Q. The second sentence of that paragraph states,
 22 "Likewise, all studies published in peer-reviewed
 23 journals that were cited by EPA and/or the IARC Working
 24 Group were analyzed, along with whether they reported
 25 'positive' or 'negative' genotoxicity results."

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1 A. Correct.
 2 Q. Did I read that correctly?
 3 A. Yep.
 4 Q. If I understand your testimony today, you also
 5 looked at the Monsanto review articles to identify
 6 public literature studies; is that correct?
 7 A. May I read the first sentence --
 8 Q. Yes.
 9 A. -- in paragraph 68?
 10 Q. Yes.
 11 A. "All regulatory studies cited in the
 12 September 26 EPA report or in a Monsanto-commissioned
 13 genotoxicity review article were analyzed relative to
 14 'positive' or 'negative' results. Likewise, all studies
 15 published in peer-reviewed journals that were cited by
 16 EPA and/or the IARC Working Group were analyzed along
 17 with whether they reported 'positive' or 'negative'
 18 genotoxicity results."
 19 Q. Right. So, again, this is not a trick at all.
 20 I'm just trying to understand. As I read this, you
 21 identified regulatory studies from the EPA report and
 22 from Monsanto-commissioned genotoxicity review articles;
 23 correct?
 24 A. Yes.
 25 Q. And you identified public literature studies

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1 from the EPA report and the IARC Working Group report;
 2 correct?
 3 A. And I think there were a couple that were also
 4 identified in the Monsanto-commissioned reviews.
 5 Q. Okay. And that's all I'm trying to
 6 understand --
 7 A. Okay. Yeah.
 8 Q. -- is that you also looked to those reviews --
 9 A. Yep.
 10 Q. -- to identify public literature articles;
 11 correct?
 12 A. Yes. It was a comprehensive analysis.
 13 Q. How did you determine whether studies reported
 14 a positive or negative genotoxicity result?
 15 A. By what the authors of the study said. And
 16 typically in the abstract.
 17 Q. Did you rely on EPA's or IARC's
 18 characterization of the studies to do that?
 19 A. Yes, absolutely, and that's, you know, often
 20 what EPA and IARC did.
 21 Q. Were there any instances in which EPA and IARC
 22 characterized a study differently in terms of its
 23 genotoxic result?
 24 MR. KRISTAL: You mean differently from what
 25 Dr. Benbrook characterized it or differently from each

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1 other had?
 2 MR. FAYNE: Sure. I'll clarify the question.
 3 Q. (BY MR. FAYNE:) Are there any instances in
 4 which EPA and IARC characterized a genotoxicity study
 5 differently than each other?
 6 A. I think there are one or two examples where
 7 IARC considered a result indeterminate. They just
 8 couldn't -- couldn't -- weren't -- they weren't
 9 convinced that a study reported either positive or
 10 negative results, and I -- I can't remember if in maybe
 11 one or two cases EPA had reported the study as positive
 12 or negative. There might be one or two cases.
 13 Q. In those cases, how did you resolve the
 14 conflict?
 15 A. I stuck with what each -- if EPA said that the
 16 study was positive, then I reported it in the EPA table
 17 as "positive," and if IARC said it was indeterminate,
 18 then I put "indeterminate."
 19 Q. I understand in terms of your EPA versus IARC
 20 comparison, but right now we're talking about your
 21 registrant-commissioned versus public literature
 22 comparison. I know that was a lot of terminology in
 23 that sentence. But I'm trying to understand -- let
 24 me -- strike that. Let me give you a more precise
 25 example.

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1 Okay. So if you turn to paragraph 71 of your
 2 report. You state that, "Of the 52 regulatory studies
 3 assessing the genotoxicity of glyphosate technical, only
 4 one reported a positive result, while 35 of the
 5 public-literature studies reported positive evidence of
 6 genotoxicity."
 7 Other than the parenthetical I skipped, did I
 8 read that correctly?
 9 A. Yes.
 10 Q. So if EPA identified a study as having a
 11 positive result and IARC identified the same study as
 12 indeterminate, did you treat that as a positive result
 13 or as indeterminate in this calculation?
 14 A. As I said, the worksheets within the workbook
 15 are driven precisely by what's in the tables. In the
 16 case of the EPA worksheets, the September 26th -- 2016
 17 report, and in the case of IARC, the Volume 112. So if
 18 there was such an example, I recorded it -- I recorded
 19 the information as each of the respective organizations
 20 stated it.
 21 Q. But when you're reporting the results of these
 22 studies, which you've gathered from two different
 23 places, how did you determine whether to report the
 24 result as a positive result or, I guess in this case, a
 25 non-positive result?

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1 A. I don't think that that situation ever arose.
 2 I mean, it's just not a -- it's not something that I
 3 dealt with, I had to deal with. You know, I understand
 4 that, you know, there -- I vaguely remember there was
 5 one instance, and I don't -- I don't think it affected
 6 the analysis in any way because of the way I structured
 7 the workbooks.
 8 Q. Okay. So you're not sure, sitting here today,
 9 whether there was an instance where EPA classified a
 10 result as negative and IARC classified the same assay as
 11 positive?
 12 A. There were no instances of that. I believe
 13 there might have been one instance for one assay where
 14 IARC's -- IARC classified it as indeterminate and EPA
 15 classified it as I don't remember whether it was
 16 positive or negative. And I actually -- I don't -- I'd
 17 have to go back and look.
 18 I might have just eliminated that one from the
 19 overall count because -- for this -- for this particular
 20 part of the analysis because, you know, you're right,
 21 there's a conflict there.
 22 Q. Is it possible that you've included in these
 23 results a study that EPA characterizes positive that
 24 IARC found was indeterminate?
 25 A. No.

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1 MR. KRISTAL: And by "these results," you meant
 2 the count that we're talking about here?
 3 MR. FAYNE: The counts.
 4 MR. KRISTAL: No.
 5 MR. FAYNE: Yes. Yes.
 6 MR. KRISTAL: The count in paragraph 71?
 7 MR. FAYNE: Sure. And again, I don't
 8 want -- that was an example, but I'm really referring to
 9 the counts in paragraph -- paragraphs 70 through 73.
 10 MR. KRISTAL: Fair enough.
 11 Q. (BY MR. FAYNE:) And it's your -- the testimony
 12 we -- the topics we've been discussing previously, that
 13 applies to all these paragraphs; correct? You weren't
 14 referring specifically to paragraph 71? Strike that. I
 15 can ask a more clear question.
 16 When you were indicating that you're only aware
 17 of maybe one instance where there was a conflict between
 18 the two, that's across all of the different categories
 19 of regulatory studies, public-literature studies,
 20 glyphosate technical, glyphosate-based formulations;
 21 correct?
 22 A. Yes, sir.
 23 Q. In putting together these counts, did you do
 24 any analysis -- strike that.
 25 In doing these counts, did you take into

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1 account whether EPA or IARC raised concerns about the
 2 reliability of a study?
 3 A. I recorded the information as it was presented
 4 in the tables. You know, there are -- there are
 5 comments in -- in the results section of the EPA tables.
 6 For example, where it says "results," you will encounter
 7 some assays where EPA will say positive or negative, and
 8 then there will be some additional information,
 9 "positive at the highest dose tested," or something of
 10 that nature.
 11 I -- I absolutely was thorough in capturing
 12 whether EPA or IARC, for a given assay, characterized it
 13 as negative or positive, but I did not strive to move
 14 into the spreadsheet the sort of the caveats or the
 15 additional information.
 16 Q. So if, let's say, EPA and IARC both
 17 characterize a certain study as positive, you would, in
 18 your results, count that as a positive study; correct?
 19 A. For both, correct.
 20 Q. And you would not go back to look to see
 21 whether EPA or IARC said we have concerns about the
 22 reliability of this study; correct?
 23 A. It -- if EPA or IARC put a study in one of its
 24 tables, I think the -- it's a fair read of the reports
 25 that they regarded those studies to be of sufficient

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1 quality to report a result.
 2 Q. Understood. But if it was in the tables, you
 3 didn't go back to the narrative to see whether they had
 4 any commentary about the strength of the results or
 5 whether they were reliable; correct?
 6 A. I understand your question now.
 7 Well, you know, of course I carefully read the
 8 narrative several times. I didn't strive to incorporate
 9 any further discussion or assessment of study quality
 10 in -- in my accounting that we've been talking about in
 11 these paragraphs.
 12 Q. Correct. And again, I'm just referring to your
 13 counting in these paragraphs. So in your counting, you
 14 didn't go back to the narrative to see if EPA or IARC
 15 said there are limitations for this study; correct?
 16 A. Correct.
 17 Q. If it was reported as positive in the table,
 18 you included it in your count?
 19 A. Correct, or negative.
 20 Q. Or negative, correct.
 21 A. Right.
 22 Q. Similar question. Did you yourself perform any
 23 assessment of the studies listed in your count to
 24 determine whether they were well-designed quality
 25 studies?

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1 A. Yes, I did.
 2 Q. And did you exclude any studies on the basis
 3 that you didn't believe them to be well-designed?
 4 MR. KRISTAL: In the count?
 5 MR. FAYNE: In the count, yes.
 6 THE WITNESS: No. I stuck with what EPA
 7 reported in the tables and what IARC reported in the
 8 tables, but I wanted to understand more thoroughly how
 9 some of the studies were designed, what some of the
 10 issues were. I was interested in dose levels in some
 11 cases. So I have a printout of essentially every single
 12 published genotox study in these tables. It's quite a
 13 thick file.
 14 And as you note in my reliance list in the
 15 genotox bibliography, all of those studies are included
 16 in it.
 17 Q. (BY MR. FAYNE:) But you did not exclude any
 18 studies from your count based on your review of the
 19 study design; correct?
 20 A. Correct.
 21 MR. KRISTAL: We've been going about another
 22 hour.
 23 MR. FAYNE: Give me three more minutes.
 24 MR. KRISTAL: Take five.
 25 THE WITNESS: I'm good.

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1 MR. FAYNE: You're good?
 2 THE WITNESS: I'm good.
 3 MR. KRISTAL: Well, if you want to keep going,
 4 then I'll hand the microphone to Pedram while I step out
 5 for a minute.
 6 THE WITNESS: We could probably power through
 7 to lunch.
 8 MR. KRISTAL: That's fine.
 9 Q. (BY MR. FAYNE:) So if you look at paragraph 70
 10 through 73 of your report.
 11 A. Okay.
 12 Q. In these paragraphs you report the results of
 13 your counting of regulatory studies versus studies
 14 published in the scientific journals; correct?
 15 A. Correct.
 16 Q. And just to confirm, in these counts listed in
 17 these paragraphs 70 through 73, if a study was included
 18 in the IARC and EPA tables, it was included in these
 19 counts; correct?
 20 A. That is correct.
 21 Q. You did not exclude any based on your own
 22 review of the studies?
 23 A. Correct.
 24 Q. Can you turn to paragraph 75 of your report?
 25 So as part of this analysis of regulatory

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1 studies versus public-literature studies, you also did a
 2 review of when the various studies were conducted;
 3 correct?
 4 A. I did.
 5 Q. And you state in paragraph 75 that "In terms of
 6 in vivo chromosomal aberration studies on glyphosate
 7 technical, the most recent registration study was
 8 completed in 1994, while two of three public-literature
 9 studies were done in 2012."
 10 A. Correct.
 11 Q. If you turn to the EPA or IARC report,
 12 whichever your preference -- I'm just trying to identify
 13 what those two studies conducted in 2012 are because I
 14 wasn't able to find them in the tables.
 15 A. Okay. So we're in vivo chromosomal aberration.
 16 Let's see. Probably -- let's start here.
 17 MR. ESFANDIARY: Are you referring to IARC or
 18 the EPA's report?
 19 MR. FAYNE: Either.
 20 MR. ESFANDIARY: All right.
 21 THE WITNESS: So you want the more recent ones?
 22 MR. FAYNE: I'm just trying to understand what
 23 the two in vivo chromosomal aberration studies on
 24 glyphosate technical that were done in 2012 --
 25 THE WITNESS: Okay.

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1 MR. FAYNE: -- what you're referring to.
 2 THE WITNESS: All right. So the in vivo test
 3 in the EPA report at Table 5.5 -- and you'll see it's
 4 1983, 1982, 1994, 1990 and 1992. So in the -- in the
 5 IARC report -- and it gets confusing because, of course,
 6 they -- their taxonomy of genotoxicities doesn't track
 7 exactly the way that EPA did it. Whoops.
 8 So the -- in Table 4.2 of the IARC report,
 9 which is page 49, there's a Koller, et al., 2012.
 10 MR. FAYNE: Uh-huh.
 11 THE WITNESS: And on the next page there's
 12 another assay from the -- I assume the same study by
 13 Koller, yeah, also published in 2012.
 14 Q. (BY MR. FAYNE:) So you're referring to
 15 Table 4.2; correct?
 16 A. Correct.
 17 Q. So the first Koller, et al., study from 2012 is
 18 looking at DNA damage and in particular DNA-strand
 19 breaks and SCG assay; correct?
 20 A. Yes.
 21 Q. And your contention is that that is an in vivo
 22 chromosomal aberration study?
 23 A. These are in vitro. Did you ask me about in
 24 vivo?
 25 Q. I'm just reading paragraph 75 of your report.

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1 A. Okay.

2 Q. Well, yes, in vivo chromosomal aberration.

3 A. Okay. Then we got to go to a different table.

4 Sorry.

5 And is it in humans or non-humans?

6 Non-mammalian? Send me -- oh, okay. So we're talking

7 about paragraph 75; right?

8 In vivo chromosomal aberration. Okay. So that

9 starts here. Sorry. It's taking me a little while to

10 remember how they organized all of this.

11 MR. KRISTAL: Well, it's more important to get

12 it correct than quick.

13 THE WITNESS: Okay. Let me use a few minutes

14 of my lunchtime to find them; okay?

15 MR. FAYNE: Sure. We can come back to it.

16 Q. (BY MR. FAYNE:) So let's turn to paragraph 79

17 of your report.

18 A. Okay.

19 Q. You state, "Based on the above analysis, I

20 conclude that the dramatic differences in the results of

21 genotoxicity assays reported in registrant-sponsored

22 studies, in contrast to assay results appearing in

23 peer-reviewed journals, arise from the state-of-science

24 when various studies were conducted, coupled with the

25 generally more sensitive assay systems used by the

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1 scientists publishing their results in peer-reviewed

2 journals."

3 Did I read that correctly?

4 A. Correct.

5 Q. So if I understand your opinion correctly,

6 you're citing two reasons that the genotoxicity assays

7 reported in the registrant-sponsored studies differ from

8 those appearing in peer-reviewed journals; correct?

9 A. Correct.

10 Q. And the first is the time when the studies were

11 conducted?

12 A. Correct.

13 Q. And the second is that the public literature

14 studies generally use more sensitive assay systems;

15 correct?

16 A. Correct.

17 Q. What are the more sensitive assay systems that

18 you're referring to?

19 A. Any assay system other than a bacterial reverse

20 mutation study, and this is because of the well-known

21 fact that bacteria don't have mitochondria and

22 glyphosate targets mitochondria.

23 So it is no surprise to many scientists in the

24 field that bacterial reverse mutation studies on both

25 glyphosate technical and formulated glyphosate-based

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1 herbicides are predominantly negative, and so, hence,

2 they're not as sensitive an assay to detect DNA damage

3 of various sorts and other mechanism of genotoxicity.

4 So I would characterize, in effect, all of the

5 other assay systems as more sensitive simply because of

6 this particular quirk of that bacteria don't have

7 mitochondria.

8 Q. So you would characterize -- just to make sure

9 I understood what you just said, any assay other than

10 the bacterial reverse mutation assay is what you would

11 characterize as more sensitive; correct?

12 A. Correct.

13 Q. So just going through the EPA tables, in vitro

14 mammalian gene mutation assays, those would be

15 considered more sensitive?

16 A. Correct.

17 MR. KRISTAL: Maybe if we just speak a little

18 more slowly.

19 MR. FAYNE: Yes, I will do that.

20 Q. (BY MR. FAYNE:) In vitro tests for chromosome

21 aberrations in mammalian cells, that would be a more

22 sensitive assay?

23 A. Yes, sir.

24 Q. In vitro tests for micronuclei induction in

25 mammalian cells --

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1 A. Correct.

2 Q. -- that would be more sensitive?

3 A. Yes, more sensitive, certainly.

4 Q. Is it a fair characterization of your report to

5 interpret the term or the phrase "more

6 sensitive" -- "more sensitive assay system" to mean any

7 assay system other than a bacterial reverse mutation

8 assay?

9 A. Certainly among the assay systems that are

10 covered in the September 2016 EPA report and the IARC

11 report. There are other genotox assay systems that

12 haven't been deployed in the assessment of glyphosate

13 technical and GBH and genotoxicity, and I haven't

14 reviewed all those and I'm not prepared to opine whether

15 they're all more or less sensitive.

16 And it obviously becomes very complicated when

17 you start assessing some of the genotox systems in

18 non-mammalian organisms, earthworms and fish and et

19 cetera.

20 Q. Would you agree that EPA considered all of

21 these more sensitive assay systems in its 2016 and now

22 2017 reports?

23 A. They considered a few registrant-submitted

24 studies in some of the categories and several in a few

25 others, yes.

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1 Q. Which categories -- strike that.
 2 Which types of more sensitive assay systems did
 3 EPA not consider?
 4 A. Well, certainly the direct DNA damage in
 5 exposed human populations, the EPA didn't consider any
 6 of those studies. That's the table we looked at before
 7 with the four.
 8 In the -- and we can go through each one of
 9 them and I'll characterize the differences, if you'd
 10 like.
 11 Q. Well, I'm just trying to understand. We just
 12 walked through a number of more sensitive assay systems
 13 the EPA did consider; correct?
 14 A. EPA considered at least a few genotox assays in
 15 each of the categories, but in several of the categories
 16 they -- they considered a far fewer number than the IARC
 17 Working Group.
 18 Q. Would you agree that EPA considered some
 19 studies in each of the more sensitive assay categories
 20 on glyphosate technical?
 21 A. Yes.
 22 Q. You state in paragraph 78 of your report that
 23 "In my opinion, assays designed to detect direct damage
 24 to DNA in humans following exposure to a formulated
 25 glyphosate-based herbicide are the most important in

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1 evaluating glyphosate and glyphosate-based herbicide
 2 genotoxicity."
 3 Did I read that correctly?
 4 A. Yes.
 5 Q. What is the basis of your opinion that assays
 6 designed to detect direct damage to DNA are the most
 7 important?
 8 A. The emphasis placed on them by the IARC Working
 9 Group and the fact that they are based on real-world
 10 exposure levels that some exposed human population
 11 actually incurred.
 12 Q. And again, so when we're -- when you're
 13 referring to assays designed to detect direct damage to
 14 DNA in humans, you're referring to those five assays in
 15 the first IARC table?
 16 A. Yes.
 17 Q. And that's the Bolognesi 2009 and the
 18 Paz-y-Mino studies?
 19 A. Correct.
 20 Q. Can you identify a peer-reviewed journal or
 21 other source that suggests that assays designed to
 22 detect direct damage to DNA are the most important in
 23 evaluating genotoxicity?
 24 A. Well, as we -- as we've discussed --
 25 MR. KRISTAL: Did you mean -- well, I object to

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1 the form unless you're tracking paragraph 78. Direct
 2 damage to DNA in humans. In other words, are you
 3 switching the --
 4 MR. FAYNE: No. I'll ask the question again,
 5 but I'm tracking paragraph 78.
 6 MR. KRISTAL: That's what I thought, but
 7 technically the question didn't include "in humans,"
 8 so...
 9 MR. FAYNE: Sure.
 10 THE WITNESS: So could you restate it?
 11 MR. FAYNE: I'll repeat the question.
 12 THE WITNESS: Thank you.
 13 Q. (BY MR. FAYNE:) Can you identify a
 14 peer-reviewed journal or other source, other than the
 15 IARC monograph, that supports your opinion that assays
 16 designed to detect direct damage to DNA in humans
 17 following exposure are the most important in evaluating
 18 genotoxicity in humans?
 19 A. That's a very widely shared view. There are
 20 multiple peer-reviewed articles, including some that I
 21 am co-author of, that make essentially that statement
 22 and say that, to the extent that such studies are
 23 available in exposed human populations, they -- they
 24 clearly are the most relevant because they -- they avoid
 25 trying to interpolate from an in vitro study involving

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1 cells to an actual human body that's alive and is
 2 metabolically and physiologically active. That's
 3 obviously the most relevant study system, if you will,
 4 to try to understand the impact of any toxic chemical on
 5 human beings.
 6 Q. As we discussed previously, EPA listed the
 7 studies that you referred to that were cited by IARC in
 8 Appendix D of its report assigning them a low quality
 9 evaluation; correct?
 10 A. That's correct.
 11 Q. Going back to the peer-reviewed journal
 12 question. You testified that there's a whole large
 13 number of studies that express that view. Can you
 14 identify for me one that you were not an author or a
 15 co-author of?
 16 A. That expresses that view?
 17 Q. Yes.
 18 A. Well, let's see. There's a -- if you're going
 19 to ask me to, from memory, identify a peer-reviewed
 20 study that says that in exactly those words, I'm not
 21 prepared to do that, but I will be glad to find several
 22 that make that point, you know, but perhaps not in those
 23 exact words. It's not a -- it's not a -- I don't think
 24 you'll find any expert that would argue with that point.
 25 Q. But sitting here today, you're not able to

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1 identify a study that expresses that viewpoint; correct?
 2 A. Yes, I am able. If you want to give me the
 3 time to do it, I'll get online and I'll find them.
 4 Q. Well, we can look at your reliance list, if
 5 you'd like. You've got a number of studies cited there.
 6 Are there any studies cited on your reliance list that
 7 express that viewpoint?
 8 A. Again, I know -- I know where this is headed,
 9 and you're -- you're going to ask me to identify
 10 essentially that sentence, and if it's not there in
 11 exactly those words, then you're going to object.
 12 So I -- I stand by my statement that it's a
 13 widely shared view and there are, you know, several
 14 peer-reviewed studies that -- that articulate that in
 15 the body of the -- the paper.
 16 Q. And I'll ask the question again just because I
 17 don't think you've answered it yet.
 18 That sitting here today, you cannot identify a
 19 study that you were not the author or --
 20 A. You're kind of eating up my lunch. I'll pull
 21 out my computer.
 22 MR. KRISTAL: No, no. You don't have to do
 23 anything --
 24 MR. FAYNE: I'm not asking you to do that.
 25 MR. KRISTAL: -- on your dime. If he wants you

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1 to look it up now as you sit here, we can do that.
 2 THE WITNESS: Okay. I'll go to my room
 3 and I'll do it.
 4 Q. (BY MR. FAYNE:) No, I don't want you to look
 5 it up right now. I'm just asking you as you sit here
 6 right now, without having looked it up, are you able to
 7 identify one?
 8 A. No, I'm not.
 9 Q. If you look in Table 5.7 of the EPA report.
 10 A. Page, please.
 11 Q. Page 122.
 12 A. Okay. I'm there.
 13 Q. This lists a number of assays for detecting
 14 primary DNA damage; correct?
 15 A. Correct.
 16 Q. When you refer to direct DNA damage, is that
 17 different than primary DNA damage?
 18 A. No.
 19 Q. So when you use the term "direct DNA damage,"
 20 that means the same thing as when EPA says "primary DNA
 21 damage"; correct?
 22 A. Correct.
 23 Q. And as we've just been talking about, the EPA
 24 lists a number of studies that it considered evaluating
 25 assays for detecting primary DNA damage based on

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1 glyphosate technical; correct?
 2 A. Correct. That's what Table 5.7 is.
 3 Q. You've never designed a genotoxicity study;
 4 correct?
 5 A. You already asked me that.
 6 Q. I apologize. I don't remember the answer.
 7 Have you designed a genotoxicity study?
 8 A. No, I have not.
 9 Q. And you've never conducted a genotoxicity
 10 study; correct?
 11 A. Correct.
 12 Q. So your understanding of genotoxicity is based
 13 on reviewing published literature?
 14 MR. KRISTAL: Are you asking these seriatim or
 15 exclusively published literature, or what?
 16 MR. FAYNE: I mean, yeah, I'm going to ask
 17 you -- strike that.
 18 Q. (BY MR. FAYNE:) Your understanding of
 19 genotoxicity is based on reviewing published literature
 20 and speaking to the experts in the field of
 21 genotoxicity; is that a fair characterization?
 22 A. That's certainly the primary basis for my
 23 knowledge of genotoxicity assays.
 24 Q. Would you agree that EPA has within its ranks a
 25 number of experts in the field of genotoxicity?

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1 A. Probably a few.
 2 Q. Within the office of its pesticide programs?
 3 A. Yeah. Within OPP, yes. I would -- I would
 4 assume that at any one point in time during the record
 5 of this case, there would be at least one or two
 6 Ph.D.-level scientists trained in some aspect of
 7 genotoxicity.
 8 Q. And presumably there were -- some of those
 9 experts were involved in the preparation of the 2016 OPP
 10 report. Is that a fair assumption?
 11 A. Well, the -- whoever was on staff at the time,
 12 yes.
 13 Q. If you'd turn to page 126 of the OPP report.
 14 A. Okay. I'm there.
 15 Q. So this is the summary and discussion of EPA's
 16 genotoxicity section; correct?
 17 A. Correct.
 18 Q. And about midway through that first paragraph
 19 it states, "In the weight-of-evidence analysis, studies
 20 evaluating endpoints that measured gene mutations and
 21 chromosomal aberration, i.e., permanent DNA damage, were
 22 given more weight than endpoints reflecting DNA events
 23 that may be transient or reversible, such as primary DNA
 24 damage, for example, COMET assays."
 25 Did I read that correctly?

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1 A. Yes, you did.
 2 Q. So would you agree that EPA's view is that
 3 studies of primary DNA damage are less important than
 4 studies measuring endpoints such as gene mutations and
 5 chromosomal aberrations?
 6 A. I think you might have misstated that.
 7 Q. How so?
 8 A. Well, why don't you redo the question.
 9 Or you could reread the question if she took it
 10 down, whichever you'd like to do.
 11 Q. I'll re-read it.
 12 A. Maybe I just misheard it. It could be my
 13 fault.
 14 Q. Would you agree that EPA's view is that studies
 15 evaluating primary DNA damage are less important in the
 16 weight-of-the-evidence analysis than studies evaluating
 17 endpoints measuring gene mutations and chromosomal
 18 aberrations?
 19 A. In general, yes.
 20 Q. And that's inconsistent with your view that
 21 studies of direct DNA damage are the most important; is
 22 that fair?
 23 A. Oh, I don't know. That would take some
 24 thought.
 25 Q. What about that statement is not fair?

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1 A. What EPA is getting at is that any genotoxicity
 2 assay that is capable of measuring or reports permanent
 3 inheritable damage to DNA is more worrisome than a
 4 genotoxicity assay that produces a response but one
 5 that's reversible, and that I agree to -- I agree with
 6 that view.
 7 Q. And you agree that studies of direct DNA damage
 8 do not necessarily -- necessarily show a permanent
 9 response. They can be transient or reversible; correct?
 10 A. Correct.
 11 Q. So turning back to your report, go to paragraph
 12 9(c). This is on page 8.
 13 A. Going backwards.
 14 Q. Skipping around.
 15 A. 9(c). Are we on page 8?
 16 Q. Page 8, yep. Actually, let me go back to the
 17 questions we were just discussing briefly. So as I
 18 think you just testified -- and I'll read it so that I
 19 make sure I get it correct -- is that "Assays that are
 20 capable of measuring or reporting permanent inheritable
 21 damage to DNA is more worrisome than a genotoxicity
 22 assay that produces a response but one that's
 23 reversible"; correct?
 24 A. Correct.
 25 Q. So you would agree that endpoints measuring

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1 direct DNA damage may be transient or reversible and
 2 thus not indicative of true genotoxicity; correct?
 3 MR. KRISTAL: Objection.
 4 A. It -- the damage might be heritable and
 5 permanent or it might not. Both can fall under that
 6 category of direct DNA damage.
 7 Q. So positive results in those direct DNA tests
 8 are not necessarily indicative of true genotoxicity;
 9 correct?
 10 MR. KRISTAL: Objection.
 11 A. Well, I don't understand your use of the term
 12 "true genotoxicity."
 13 Q. Are not indicative of a genotoxic effect;
 14 correct?
 15 MR. KRISTAL: Objection.
 16 A. I don't agree.
 17 My understanding is that you've asked me if a
 18 genotoxicity assay that measures an impact which may be
 19 reversible, if you're asking me if I think that's not a
 20 genotoxic effect, then I do not agree with that, and nor
 21 do most scientists.
 22 It is true that some impacts on DNA are
 23 repairable. It's also true that rarely are repairs
 24 fully successful, and that damaged DNA that isn't fully
 25 repaired is cumulative over time. So it's not

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1 appropriate, in my judgment, to dismiss genotoxicity
 2 assay results that are possibly repairable or reversible
 3 as not relevant or important.
 4 Q. In your view, such assay results are the most
 5 important, is how I understood your report; is that not
 6 correct?
 7 A. That's not correct.
 8 Q. So when you say in your report that "Assays
 9 designed to detect direct damage to DNA in humans are
 10 the most important," how can I reconcile those two
 11 statements?
 12 A. I think the problem that we have here is that
 13 direct damage to DNA can be permanent inheritable or
 14 reversible.
 15 Q. Correct. And my question is, in light of that
 16 fact, isn't it true that studies looking at chromosomal
 17 aberrations that are not reversible, aren't those
 18 studies more important in evaluating genotoxicity?
 19 A. I -- yes, and I've agreed with you on that
 20 multiple times. I think I have, anyway. Tried to.
 21 Q. Sure. So now let's go to paragraph 9(c) in
 22 your report, which is on page 8. And about halfway
 23 through that paragraph you state, "I conducted a PubMed
 24 search for genotoxicity studies on glyphosate and
 25 glyphosate-based herbicides on November 19th, 2018, and

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1 identified 26 studies published since 2015, of which 25
 2 reported positive evidence of genotoxicity in one or
 3 more assays."
 4 A. Correct.
 5 Q. Did I read that correctly?
 6 A. Yeah.
 7 Q. How did you perform your search?
 8 A. Well, I went onto PubMed and typed in
 9 "glyphosate," "glyphosate-based herbicides,"
 10 "genotoxicity," "mutagen," and probably a few other
 11 search words, terms. I've been -- I've done these
 12 searches before so I kind of used the same methodology.
 13 Q. Based on that search, you identified 26 studies
 14 published since 2015; correct?
 15 A. Correct.
 16 Q. Did you exclude any studies from that number
 17 based on your review of the study design or quality?
 18 A. No.
 19 Q. The majority of the studies you identified were
 20 in non-mammalian systems; is that a correct statement?
 21 A. I think -- don't I talk about that in the
 22 paragraph somewhere?
 23 Q. Yes. I believe you state that --
 24 A. 12 mammalian studies were all positive. So if
 25 there were 25 and 12 of them were mammalian, then about

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1 half and half.
 2 Q. Yeah. I believe there were 26 studies total.
 3 12 of those were mammalian; is that fair?
 4 A. Yeah.
 5 Q. How did you determine whether the studies were
 6 positive or negative for genotoxic effect?
 7 A. By what the authors reported.
 8 Q. So you reviewed the abstract or the body of the
 9 report?
 10 A. No. I downloaded the full studies and often
 11 read most of them and certainly read the -- if the -- if
 12 the abstract was clear and I felt complete, I may not
 13 have read much more of the study, but in several of them
 14 I was quite interested in where the science has moved in
 15 recent years.
 16 MR. FAYNE: Now is probably a good time for a
 17 break if you want to take a quick one and then maybe --
 18 THE WITNESS: Is this lunch break?
 19 MR. FAYNE: Well, it's 11 o'clock. Let's go
 20 off the record.
 21 VIDEOGRAPHER: Off the record at 10:59 a.m.
 22 (A brief recess was had.)
 23 VIDEOGRAPHER: Back on the record at 11:10 a.m.
 24 Q. (BY MR. FAYNE:) I'd like to shift gears now
 25 and turn to Dr. Parry's report, which you testified

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1 about -- or opined about in your report; correct?
 2 A. Yes.
 3 Q. So if we turn to page 477 of your report.
 4 A. Maybe paragraph?
 5 MR. KRISTAL: Paragraph.
 6 THE WITNESS: Maybe paragraph?
 7 MR. FAYNE: I'm really struggling with that
 8 today. Paragraph 477 of your report.
 9 THE WITNESS: That's all right.
 10 MR. FAYNE: Not quite that long.
 11 MR. KRISTAL: Next deposition there will be
 12 477 pages.
 13 THE WITNESS: We'll catch up with it. So 477.
 14 MR. FAYNE: Yes. Yes. This is the beginning
 15 of the Dr. Parry's section of the report.
 16 THE WITNESS: The good Dr. Parry.
 17 MR. KRISTAL: It's P-A-R-R-Y as opposed to
 18 E-R-R-Y.
 19 Q. (BY MR. FAYNE:) So in paragraph 477, you state
 20 that, "In the 1990s, several positive genotoxicity
 21 studies were published," and then you cite the Lioi, et
 22 al., L-I-O-I, 1998, the Lioi, 1998 -- there are two of
 23 those -- the Bolognesi, et al., 1997 and the Clements,
 24 et al., 1997; correct?
 25 A. Correct.

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1 Q. And as you discuss in your report, because of
 2 those studies Monsanto decided to retain Dr. Parry to
 3 undertake a review; correct?
 4 A. Of those studies.
 5 Q. Of those studies.
 6 A. That's where they came from.
 7 Q. Exactly. Correct.
 8 A. Yeah.
 9 Q. And Dr. Parry prepared a number of reports in
 10 which he summarized these genotoxicity studies that were
 11 in the public literature; correct?
 12 A. And others.
 13 Q. And others, including others in Monsanto's
 14 internal database of genotoxicity studies; correct?
 15 A. Yes, sir.
 16 Q. Dr. Parry did not conduct any primary research;
 17 correct?
 18 MR. KRISTAL: You mean for Monsanto in this
 19 project?
 20 MR. FAYNE: Strike that. Yes. Let me be more
 21 clear.
 22 Q. (BY MR. FAYNE:) With respect to this project
 23 on behalf of Monsanto in the late 1990s, Dr. Parry was
 24 not performing any primary genotoxicity studies;
 25 correct?

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1 A. Correct.

2 Q. He was summarizing studies that already

3 existed; correct?

4 A. Well, reviewing and -- and sharing his

5 assessment of their quality and relevance and findings.

6 Q. Would you agree that his findings about what

7 those studies showed were consistent with the findings

8 of the study authors?

9 A. In general, yes.

10 Q. Are you aware of any instance in which

11 Dr. Parry found a study to show a genotoxic effect when

12 the author of that study had found the study to be

13 negative?

14 A. I'm not aware of any such cases.

15 Q. So turning to paragraph 480 of your report, you

16 state that in a letter --

17 A. Where are we now?

18 Q. Paragraph 480, just two paragraphs down.

19 A. 480. I thought you said 4E. 480, okay, I'm

20 there.

21 Q. So in paragraph 480 you state, "In a letter

22 dated August 18th, 1999, Dr. Parry transmitted his first

23 of three evaluation reports to [REDACTED] --

24 M-A-R-T-E-N-S -- "a Monsanto toxicologist"; correct?

25 A. Correct.

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1 Q. What are you relying upon for your statement

2 that Dr. Parry transmitted three reports?

3 A. My reading of the three reports.

4 Q. So you identified three reports in the

5 discovery record --

6 A. Yes.

7 Q. -- from Dr. Parry to Monsanto?

8 A. Yes.

9 Q. Do you recall when the other two reports were

10 submitted?

11 A. I don't remember the dates. I think two of

12 them came together. There was an assessment of the

13 studies and then a separate report on recommendations,

14 so I counted that as a third report.

15 Q. Understood.

16 A. Does that help?

17 Q. That is helpful. I think that explains the

18 disconnect. Thank you.

19 In paragraph 488, so now a couple of pages --

20 A. All right.

21 Q. -- further.

22 A. I'm with you.

23 Q. You state, "In the next several days, in early

24 July, 1999, Monsanto officials discuss internally

25 whether to commission the new genotoxicity research

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1 studies Parry recommended."

2 Do you see that?

3 A. Yes.

4 Q. Would you agree that it wouldn't be possible

5 for Monsanto to discuss internally the studies that

6 Parry recommended before he had actually submitted his

7 recommendations?

8 A. Yes.

9 Q. I'll break this down for you. So Dr. Parry's

10 report in August 1999, that was not Dr. Parry's first

11 report; correct?

12 A. Well, can we just pull them all out?

13 Q. Yes. And again, it's not a trick. I'm just

14 trying to understand your timeline.

15 A. If I -- if I made a mistake in my timeline,

16 I'll readily admit it.

17 Q. Let's pull them out then, and I think we can

18 clarify. Thank you.

19 A. Okay.

20 Q. So I'll mark this as Exhibit Number 9, and this

21 is a report from Dr. Parry dated February 11th, 1999.

22 MR. KRISTAL: Thank you.

23 (Exhibit 9 marked for identification.)

24 Q. (BY MR. FAYNE:) So I'm showing you a document

25 that's been marked Exhibit Number 9.

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1 Have you seen this before?

2 A. Yes.

3 Q. And is this one of the reports that Dr. Parry

4 submitted to Monsanto?

5 A. It's my understanding this is the first one.

6 Q. So just to clarify the record, your

7 understanding in your report that the August 1999 report

8 was the first one is incorrect; correct?

9 A. Yes, this is the first one. The one that was

10 just these four papers that I talked about in

11 paragraph 477.

12 Q. Okay. You can put that to the side for a

13 second.

14 A. Okay. So I got to fix this. It's probably the

15 second.

16 Q. So turning to paragraph 80 of your report --

17 and I apologize. The Parry sections are -- there's a

18 couple of them, so. Paragraph 80 of your report, which

19 is on page 24.

20 A. 24, you said?

21 Q. Yes.

22 A. Okay. I'm there.

23 Q. You state that, "Dr. Parry provided 11 specific

24 recommendations to Monsanto following his review of

25 several published and Monsanto-commissioned genotoxicity

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1 studies."
 2 Do you see that?
 3 A. Yes.
 4 Q. And I read that correctly?
 5 A. Yes.
 6 Q. And now I'm going to direct you back to
 7 paragraph 484. And you say --
 8 A. Oh, Jesus. Hang on a second. 484. Got it.
 9 Q. You state that, "In addition to his written
 10 reports, Dr. Parry provided Monsanto with a detailed
 11 list of recommended research activities to clear up
 12 lingering questions over the genotoxicity of
 13 glyphosate-based herbicides," and you cite MONGLY --
 14 M-O-N-G-L-Y -- 01314264; correct?
 15 A. Correct.
 16 Q. And is this the -- are these the
 17 recommendations that you're referring to when you say
 18 "11 specific recommendations"?
 19 A. It's the last of the Parry reports, by my
 20 accounting, and it's the one that spells out a number of
 21 recommendations, yes.
 22 MR. FAYNE: So let's pull that out. So we'll
 23 cite -- or we'll mark as Exhibit 10 what I understand to
 24 be the second and third Dr. Parry reports, but you can
 25 confirm that for me once you have a chance.

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1 (Exhibit 10 marked for identification.)
 2 MR. KRISTAL: Thank you.
 3 THE WITNESS: Yes, these are -- these are
 4 the -- what I understand to be the penultimate and most
 5 complete report by Dr. Parry, upon his review of all of
 6 the genotoxicity assays that he was asked to review by
 7 Monsanto, as well as his recommendations for further
 8 research to resolve lingering questions.
 9 Q. (BY MR. FAYNE:) And to be clear, you're -- the
 10 way you framed it in your report is that those are two
 11 separate reports?
 12 A. The way that I first obtained these reports,
 13 they were referred to in different documents. I see
 14 these are MONGLY-numbered consecutively, but, as I said,
 15 they -- they were -- when I first encountered them, they
 16 were not a part of the same report. And I'm not even
 17 sure that they were, but, you know, I can probably go
 18 back in the record and try to determine that.
 19 Q. Is it your understanding that both the first
 20 report setting forth his conclusions and the second
 21 report setting forth his recommendations, both of those
 22 were submitted to Monsanto in August 1999? Correct?
 23 A. Yes. And as far as I know, they were the last
 24 reports from him as well.
 25 Q. So I'd like to turn to the page you cite, which

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1 is --
 2 A. Oh, yeah. Sure.
 3 Q. -- a page ending in 4264.
 4 A. Yes.
 5 Q. So it looks like page 4264 lists some key
 6 questions, and then there's a -- at the bottom it says,
 7 "Deficiency in the data set," and then when we get to
 8 page 4265, it says "Actions recommended"; correct?
 9 A. This is what I would regard as this third Parry
 10 report where he starts out laying out the key questions
 11 and then he makes his recommendations on what should be
 12 done to address the key questions.
 13 Q. It's this report where he sets forth the 11
 14 specific recommendations you referred to?
 15 A. Correct.
 16 Q. Could you explain how you count 11
 17 recommendations in this report?
 18 A. Yes.
 19 Q. Please do.
 20 A. Okay. Well, provide comprehensive in vitro
 21 cytogenetic data on glyphosate formulations.
 22 C-Y-T-O-G-E-N-E-T-I-C. That would be one.
 23 The second, B, is another one where he's saying
 24 conduct these studies with and without antioxidant
 25 activities to see if -- if the impact is reversible.

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1 And then he recommends that these be
 2 under -- undertaken in an in vitro micronucleus assay in
 3 human lymphocytes. I'm not sure if I counted that as
 4 one or two. You know, I would have to go through and
 5 recreate my thinking.
 6 Q. And again, I'm just trying to understand the
 7 basis of your opinion, so I'm trying to understand how
 8 you got to 11.
 9 A. Right. So I took this document and
 10 specifically pages 2, 3 and 4 of it, and tried to
 11 identify the distinct clusters of work, and I -- I did
 12 so fairly carefully and I came up with 11.
 13 Q. Okay. I think it would be helpful for me or
 14 for us to understand what those 11 are. So if we could
 15 keep walking through it. So I believe you testified
 16 that A is one. We agree on that; correct?
 17 A. A is -- yes. So let's see if we can...
 18 Q. And your testimony is that B is either --
 19 A. Let --
 20 Q. Please. Go ahead. Yeah.
 21 A. Okay. So the recommendation "I recommend that
 22 both a) and b) should be undertaken using the in vitro
 23 micronucleus assay in human lymphocytes," that is
 24 another one. And I'll determine later whether it's two.
 25 He just says it would be cost effective.

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1 And then C is another one, "The induction of
 2 oxidative damage in vivo and determine the influence of
 3 antioxidant status. Determine the exposure
 4 concentrations of glyphosate which overwhelm the
 5 antioxidant status."
 6 MR. KRISTAL: Chuck, could I ask you to just
 7 slow down a little bit. Amy's fingers are starting to
 8 burn up.
 9 THE WITNESS: Okay. Sorry, Amy.
 10 Q. (BY MR. FAYNE:) So just to stop you on -- are
 11 you counting C as one study?
 12 A. Yes.
 13 Q. Okay.
 14 A. I believe so.
 15 Okay. Next one -- hang on. So D is clearly
 16 another distinct assay, set of assays.
 17 Trying to -- I can't recall as I sit here today
 18 whether I counted his number E, which is not to repeat
 19 the chromatoid exchange studies, whether I counted that
 20 as a recommendation for a new study or not. I think I
 21 didn't.
 22 Q. But sitting here today, you can't say one way
 23 or the other whether you did or didn't?
 24 A. Let me -- let me get to the end and if it adds
 25 up to 11, then I'll be pretty sure that I didn't.

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1 So Parry has also recommended the COMET assay
 2 in the liver and kidney of mice.
 3 Q. So just to be clear, F is another study;
 4 correct?
 5 A. Yes.
 6 The in vitro data on surfactants is another
 7 recommendation.
 8 So these are the distinct new study
 9 recommendations in this accounting by Parry, and I'll
 10 have to go back and see where I found the other ones,
 11 but I know there's 11 in a Parry document and I will
 12 find it for you.
 13 Q. Okay.
 14 A. Yeah.
 15 Q. That's something you'll do during your lunch
 16 break or?
 17 A. Well, I'll give it a try.
 18 Q. So sitting here today, you're not able to
 19 recreate how you came up with 11; is that fair?
 20 A. Right now. We'll see after lunch.
 21 Q. And just to make sure we're -- to close the
 22 loop on this particular document of actions recommended,
 23 as I counted -- as you were speaking, I got six studies.
 24 Did you have a different number?
 25 A. No. I had six. I think perhaps part of the

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1 explanation is that there are actually some
 2 recommendations at the first part of it that aren't
 3 addressed in the second part. That's -- may be. But
 4 I'll let -- give me a few minutes to recreate my
 5 thinking. I'm quite sure I have -- I can explain to you
 6 how I got to 11. I didn't make it up.
 7 MR. KRISTAL: Are you reviewing -- Exhibit 10
 8 is actually four documents. In other words, I don't
 9 know if you meant to include it as four.
 10 MR. FAYNE: Excuse me, Counsel. I know it's
 11 not your deposition. I understand you're trying to be
 12 helpful and we can work this out later, but as I
 13 understand it right now, he's not able to recreate it --
 14 THE WITNESS: Yeah. Yeah. Yeah.
 15 MR. FAYNE: -- and we can come back to it.
 16 MR. KRISTAL: Yeah. But if you want
 17 Dr. Benbrook to review to answer your questions, I don't
 18 think it's fair to him to have him do it over lunch. He
 19 should do it during the dep and ask questions.
 20 MR. FAYNE: Okay. Well, then the answer can be
 21 that you don't know sitting here today how you came up
 22 with 11 and we can leave it there.
 23 Q. (BY MR. FAYNE:) Is that -- that's your
 24 testimony, correct, right now you can't recreate how you
 25 came up with 11 studies?

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1 A. Oh, yes, I can. You know, but, again, it will
 2 take a little time.
 3 Q. It makes it difficult for me to ask you
 4 questions about it if you can't tell me sitting here
 5 today what the 11 studies recommended were, and I'm
 6 referring to the document you cited in your report and
 7 asking you to count it.
 8 A. Okay.
 9 Q. I understand that right now --
 10 A. I didn't bring my entire Parry file.
 11 Q. I understand.
 12 A. Which is about that thick. And in that Parry
 13 file I have the notes on how I counted these studies,
 14 and I'm sure that I have the --
 15 MR. KRISTAL: We'll clear it up when I get a
 16 chance to ask questions. It's a pretty simple
 17 explanation, if you don't want me to say anything on the
 18 record. If you really want an accurate count, I can say
 19 something and then we can see if we can resolve it.
 20 MR. FAYNE: Sure. Go.
 21 MR. KRISTAL: If you don't, that's fine.
 22 MR. FAYNE: Please go.
 23 MR. KRISTAL: I'm not trying to --
 24 MR. FAYNE: Please.
 25 THE WITNESS: Can we go off the record?

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1 MR. FAYNE: Yeah. Let's go off the record.
 2 VIDEOGRAPHER: Off the record at 11:31 a.m.
 3 (A brief recess was had.)
 4 VIDEOGRAPHER: Back on the record at 11:32 a.m.
 5 Q. (BY MR. FAYNE:) You state in your report,
 6 Dr. Benbrook, that Monsanto refused to conduct new
 7 studies in nine of the 11 areas; correct?
 8 A. Correct.
 9 Q. How did you determine that Monsanto refused to
 10 conduct those studies?
 11 A. Because they're not in -- there's no evidence
 12 of them being conducted, and also in their e-mail
 13 exchanges about responses to the Parry report, they say
 14 they're not going to conduct the studies that Parry
 15 recommended, with the exception of the micronucleus
 16 studies that they did to try to refute Bolognesi. They
 17 did, I think, four of those.
 18 Q. So you agree that they did conduct some studies
 19 in response to Dr. Parry's recommendations; correct?
 20 A. Yes. Yes. They did several bacterial reverse
 21 mutation studies and glyphosate-based formulations, and
 22 then they did I believe it was four micronucleus studies
 23 in the hope of refuting the Bolognesi findings.
 24 Q. How did you become aware that they had
 25 conducted the studies to replicate the Bolognesi

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1 findings?
 2 A. Well, they're in -- they're in the EPA
 3 document. They're in Kier and Kirkland. They're in
 4 Brusick.
 5 Q. It's correct, is it not, that earlier in the
 6 Roundup litigation your opinion was that they had not
 7 conducted any of the studies that Dr. Parry recommended?
 8 Is that fair?
 9 A. I don't recall if I said that.
 10 Q. But at some point you became aware that they
 11 had in fact performed at least some of the studies Parry
 12 recommended; correct?
 13 A. Yes.
 14 Q. Have you conducted a search of the discovery
 15 record to identify any additional studies that Monsanto
 16 may have conducted in response to Dr. Parry's
 17 recommendations?
 18 A. No. I have assumed that the four Monsanto
 19 reviews of genotoxicity studies represent a complete
 20 accounting of the studies that Monsanto did. I think
 21 the only exception is that there were some bacterial
 22 reverse mutation studies done for Brazilian regulators
 23 and Argentina regulators on formulated products that may
 24 not be in any of the Monsanto reviews. Those studies
 25 were brought to my attention in one of the earlier

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1 depositions.
 2 Q. Are you aware whether any of the studies that
 3 Dr. Parry recommended already existed either in
 4 Monsanto's database or in the public literature?
 5 A. Well, surely several of Dr. Parry's
 6 recommendations -- other scientists had done studies
 7 using those genotox assays, and Parry felt that it would
 8 be important to try to replicate them.
 9 And so, yes, they're -- there were some
 10 published studies reporting the results of the assays
 11 that Parry recommended that Monsanto replicate using
 12 glyphosate technical and conduct for the first time
 13 using formulated glyphosate-based herbicides.
 14 Q. If those studies were not cited in Dr. Parry's
 15 reports, you're not able to say one way or the other
 16 whether he was aware that those studies already existed;
 17 fair?
 18 A. Yes. I wouldn't have any way to read his mind.
 19 Q. So it's possible that Dr. Parry recommended
 20 further studies on certain assays that he wasn't aware
 21 that they already existed; fair?
 22 A. I suppose he may not be aware of some
 23 registrant studies that Monsanto chose not to provide to
 24 him, yeah.
 25 Q. Or public-literature studies; correct?

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1 A. He may -- he may have missed and not been aware
 2 of. Yeah, that's possible.
 3 Q. So it's possible that some of the studies he
 4 recommended already existed without his knowledge;
 5 correct?
 6 A. Sure.
 7 MR. ESFANDIARY: Anything is possible.
 8 Q. As we were discussing previously, Monsanto
 9 initially reached out to Dr. Parry because of the four
 10 studies that were published in the late 1990s; correct?
 11 A. No, that's not correct.
 12 Q. What's incorrect about that?
 13 A. Monsanto reached out to Dr. Parry because they
 14 realized that they were in trouble in terms of the
 15 recently published studies reporting a genotoxic effect
 16 of both glyphosate technical and some other assays on
 17 formulated glyphosate-based herbicides.
 18 They realized that these published studies in
 19 the peer-reviewed literature were in contrast to the
 20 universally negative genotoxicity studies that had been
 21 submitted to regulators, and they were looking for help
 22 from third-party experts, the independent scientists
 23 like Dr. Parry, to provide their views to regulators, to
 24 other scientists, to the media, relative to and in
 25 support of Monsanto's view of the genotox literature.

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1 So the purpose of the initial approach to
 2 Dr. Parry was vetting him as a potential future member
 3 of the Monsanto third-party network of experts
 4 who -- who Monsanto turns to from -- would turn to at
 5 various times to support their view of both
 6 registrant-submitted studies and peer-reviewed studies.
 7 Q. You just testified that the studies that raised
 8 concern within Monsanto were those that were published
 9 in the peer-reviewed public literature; correct?
 10 A. Those were among them, yes. This initial four
 11 were -- I don't think it was the only studies that they
 12 were concerned about at that time, but it was the first
 13 set. They were trying also to keep costs down. If you
 14 look at the e-mail exchanges, they were, you know,
 15 concerned about how much time Parry would have to invest
 16 in it, so they started with a fairly small assignment.
 17 Q. So you reviewed the internal Monsanto e-mails
 18 and it's your opinion, based on those e-mails, that they
 19 were trying to save costs?
 20 MR. KRISTAL: Objection.
 21 A. No. It's my opinion that they were cognizant
 22 of the cost entailed in -- in hiring Dr. Parry to do a
 23 thorough review of the genotox literature. I think they
 24 were -- they clearly did not provide Dr. Parry all of
 25 the internal genotox studies that they had conducted and

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1 submitted to registrants.
 2 I think they -- in Dr. Parry's reports, he does
 3 identify exactly what studies he was provided, and I
 4 doubt it's more than a quarter of the total Monsanto
 5 registrant-submitted studies. For example, they didn't
 6 provide him with 20 different bacterial reverse mutation
 7 studies that showed the same thing.
 8 Q. And there would have been no reason to do that,
 9 correct, because they all show the same thing?
 10 A. Correct. No -- no controversy on that matter.
 11 But as the discussion and interactions between
 12 Monsanto and Dr. Parry went on, it was -- it's clear in
 13 the record that Monsanto became concerned about the cost
 14 of Dr. Parry doing the studies that he felt were needed
 15 to clarify some of the questions, the key questions that
 16 he identified.
 17 In effect, Parry -- Parry was under the
 18 impression that as this dialogue went on, that he might
 19 be asked to do those studies. I'm not sure if he was,
 20 you know, ever told that directly, but I think he
 21 surmised that.
 22 But in any event, at the end of the day,
 23 Monsanto decided that they would not do the studies and
 24 that it would take too much time and cost too much money
 25 to -- to allow Parry to do all the things that he

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1 recommended to bring them around to their view of
 2 genotoxicity of glyphosate and glyphosate-based
 3 herbicides.
 4 Q. I'd like to focus on the studies in the public
 5 peer-reviewed literature that found a positive genotoxic
 6 effect in the late 1990s; okay?
 7 A. Yeah.
 8 Q. Those are studies that Dr. Parry reviewed for
 9 Monsanto; correct?
 10 A. I believe there were three different sets of
 11 studies. You know, it was the -- we talked about the
 12 first set, which was only four, and then there was
 13 another set, and then there was another set. And
 14 this -- the report that we've been talking about here in
 15 Exhibit 10, it's my understanding this was the final one
 16 that integrated Dr. Parry's review of these three
 17 tranches of sets of studies.
 18 Q. So going back to those -- let's just talk about
 19 the four studies you cite in paragraph 477 of your
 20 report; okay?
 21 A. Okay.
 22 Q. Those are all published in the peer-reviewed
 23 literature; correct?
 24 A. Correct.
 25 Q. They would be available to EPA; correct?

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1 A. Yes.
 2 Q. And, in fact, you're aware that those studies
 3 were submitted to EPA as part of a 2002 tolerance
 4 approval process; correct?
 5 A. I'm not aware of that.
 6 Q. You don't recall that from prior depositions?
 7 A. No, I don't.
 8 Q. Any reason to believe that those studies were
 9 not submitted to EPA? And I'm not -- strike that.
 10 Those studies were submitted to EPA by
 11 commenters, not by Monsanto; correct?
 12 A. I don't recall.
 13 Q. Any reason to believe that they were not
 14 submitted by commenters?
 15 A. No.
 16 Q. So let's turn to paragraph 498 of your report.
 17 So you state in paragraph --
 18 A. Hang on.
 19 Q. Oh, sure.
 20 A. 498?
 21 Q. 498 on page 110?
 22 A. Got it.
 23 Q. You state, "In my opinion, Dr. Parry's reports
 24 triggered an obligation to (1) report the information to
 25 the EPA; (2) update the Roundup label to disclose the

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1 potential of genotoxicity risk following significant
 2 and/or long-term exposures to Roundup; and (3) conduct
 3 the various studies proposed by Dr. Parry to exposure
 4 the genotoxicity of formulated glyphosate-based
 5 herbicides."
 6 Did I read that correctly?
 7 A. Yes.
 8 Q. So if I understand your opinion in this
 9 paragraph, there are three separate parts to it;
 10 correct?
 11 A. Yes.
 12 Q. So I'd like to break those down and take them
 13 one at a time, if that's okay.
 14 A. Fine.
 15 Q. So first you state that Dr. Parry's reports
 16 triggered an obligation, presumably from Monsanto, to
 17 report the information to EPA; is that correct?
 18 A. Correct.
 19 Q. What is the source of the obligation from
 20 Monsanto to report those studies to EPA?
 21 A. FIFRA, Section 6(a)2(B), the adverse health
 22 effects reporting requirement.
 23 MR. KRISTAL: That's FIFRA, F-I-F-R-A, all in
 24 caps.
 25 Q. So you're aware that EPA has adopted

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1 regulations implementing FIFRA Section 6(a)(2); correct?
 2 A. Yes.
 3 Q. Have you reviewed those regulations?
 4 A. Yes.
 5 Q. When was the last time you reviewed them?
 6 A. It's been many times. Probably in the last
 7 couple months when I -- there are two of the -- two of
 8 the passages from 6(a)2(B) are quoted verbatim in the
 9 report, so it would have been in late November.
 10 Q. And just to be clear, you've reviewed the
 11 regulations in the 40 CFR Part 158?
 12 A. Yeah. Yes, sir.
 13 Q. And your opinion, based on your review of those
 14 regulations, is that Monsanto had a legal obligation to
 15 submit the Parry report; is that correct?
 16 A. Yes.
 17 Q. And when you say in your opinion that it
 18 triggered an obligation to report the information to
 19 EPA, what information specifically are you referring to?
 20 A. Parry's conclusions that glyphosate technical
 21 and formulated glyphosate-based herbicides appear to
 22 pose genotoxic risk.
 23 Q. You testified previously that you're not aware
 24 of Dr. Parry drawing any conclusions from those studies
 25 that were different than the conclusions drawn by the

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1 authors of the study; is that fair?
 2 A. I don't believe I said that. I mean, I -- I've
 3 taken Dr. Parry's report at its word.
 4 Q. Understood. But Dr. Parry didn't look at those
 5 studies and find a genotoxic effect where the author of
 6 the study had not found one; correct?
 7 A. I'm not aware of any episode of that or example
 8 of that.
 9 Q. You also testified previously that these
 10 studies were in the public literature; correct?
 11 A. Correct.
 12 Q. So EPA had access to them; correct?
 13 A. Correct.
 14 MR. FAYNE: Mark this as Exhibit 11.
 15 MR. KRISTAL: Thank you.
 16 (Exhibit 11 marked for identification.)
 17 Q. (BY MR. FAYNE:) I'm showing you an exhibit
 18 marked Number 11, which is 40 CFR Part 159, Subpart D.
 19 And it's Reporting Requirements for Risk/Benefit
 20 Information.
 21 A. Correct.
 22 Q. You've seen this before; correct?
 23 A. Yes.
 24 Q. And if you look at Section 159.152, it states,
 25 in paragraph C, that "Compliance with this part will

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1 satisfy a registrant's obligations to submit additional
 2 information pursuant to Section 6(a)(2)"; correct?
 3 A. Correct.
 4 Q. And these regulations were adopted in the late
 5 1990s; correct?
 6 A. Correct. And changed a couple of times.
 7 Q. Sure. More -- if you look, for instance, at
 8 the very end of this document, you can see that they
 9 were adopted initially in September 1997, and then
 10 amended in June 1998, correct, at the very bottom?
 11 A. I see -- yes, I see that. Yep.
 12 Q. If you turn to Section 159.155.
 13 A. Okay.
 14 Q. "When information must be submitted."
 15 A. Yeah.
 16 Q. And Subpart A reads, "The following reportable
 17 information must be received by EPA not later than the
 18 30th calendar day after the registrant first possesses
 19 or knows of the information"; correct?
 20 A. Correct.
 21 Q. And then it lists seven categories of
 22 information; correct?
 23 A. Correct.
 24 Q. Which category do you contend Dr. Parry's
 25 reports fit into?

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1 A. Well, the -- in -- I don't remember exactly in
 2 my report where I quote from 6(a)(2)(B). It states
 3 clearly that consultant reports are -- including
 4 preliminary reports -- are among the data that, and
 5 information, that should be provided to the agency
 6 if -- and on the understanding that the information is
 7 new, has new value. Registrants are not under an
 8 obligation to submit over and over again the same
 9 information that has been provided to the agency.
 10 So the -- the component of Parry's report that
 11 in my judgment triggered an obligation to provide the
 12 information to EPA under 6(a)(2) was his -- his
 13 conclusion that there is valid science suggesting that
 14 both glyphosate technical and formulated
 15 glyphosate-based herbicides have genotoxic potential,
 16 which is not the conclusion or the information that
 17 Monsanto had provided to the EPA.
 18 Q. Let me -- I'm going to parse what you just
 19 said.
 20 If I heard you correctly, you stated that
 21 Section 6(a)(2) of FIFRA states that expert reports must
 22 be submitted.
 23 A. That consult -- yeah. Yeah. Reports
 24 commissioned by a registrant, done on behalf of a
 25 registrant, and I think they actually use the term

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1 "consultant."
 2 Q. So if I look at FIFRA Section 6(a)(2), I'll see
 3 language about experts and consultants?
 4 A. The passage is in my report. We can find it.
 5 Q. Understood. But I'm not asking about your
 6 report. I'm asking about the statute itself.
 7 Your contention is that the statute itself --
 8 A. I can't remember if the passage I quoted is
 9 actually from FIFRA or if it's from the implementing
 10 regulations. I don't recall exactly where it -- where
 11 it is, but it's an official statement of what EPA
 12 requires under 6(a)(2).
 13 Q. You would agree that the EPA regulations are
 14 EPA's official statement about what's required to be
 15 submitted; correct?
 16 A. Well, they're part of it, yeah.
 17 Q. And as we discussed previously, Section 159.152
 18 states that compliance with this part satisfies a
 19 registrant's obligations; correct?
 20 A. Yes.
 21 Q. So you would agree that if a registrant
 22 complied with 40 CFR Part 159, Subpart D, they've
 23 complied with their reporting requirements under
 24 Section 6(a)(2) of FIFRA; correct?
 25 A. I believe this is the full set of requirements

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1 under 6(a)(2), yes.
 2 Q. And so previously we were discussing
 3 Section 159.155; correct?
 4 A. Okay.
 5 Q. And that section provides when information must
 6 be submitted. So my question to you again is: What
 7 category of -- which of these seven categories does the
 8 Dr. Parry report fit into?
 9 A. The first one, scientific studies, I suppose.
 10 It's -- Parry's report was a scientific review, review,
 11 study.
 12 Q. Okay. Well, let's -- let's turn to -- so
 13 scientific study is described in 159.165. So why don't
 14 we turn to 169 -- 159.165.
 15 A. Okay.
 16 Q. So 159.165 lists -- it looks like there's
 17 toxicological studies, ecological studies, results from
 18 a study that demonstrates any toxic effect, and then
 19 (d), incomplete studies. Did I state that accurately?
 20 A. Yes.
 21 Q. I presume you're referring to this as a
 22 toxicological study; is that correct?
 23 A. Parry's review, it's a review of toxicological
 24 studies involving genotoxicity assays, yeah.
 25 Q. Okay. So Section I under "Toxicological

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1 studies" states that, "The results of a study of the
 2 toxicity of a pesticide to humans or other non-target
 3 domestic organisms if, relative to all previously
 4 submitted studies, they show an adverse effect under any
 5 of the following conditions," and then they list a
 6 number of conditions.
 7 We discussed previously that Dr. Parry did not
 8 conduct a primary genotoxicity study; correct?
 9 A. Correct.
 10 Q. He was reviewing summaries -- strike that.
 11 He was reviewing studies in the published
 12 literature and in the Monsanto database; correct?
 13 A. Well, he was reviewing and integrating the
 14 information to render his expert opinion on whether the
 15 existing genotoxicity database confirmed or didn't
 16 confirm the potential of glyphosate technical and GBHs
 17 to pose a genotoxic risk, and he reached a conclusion
 18 that, in fact, the studies taken en masse did, and that
 19 a variety of additional studies would be required to
 20 clear up ambiguity or uncertainty in the interpretation
 21 of the existing studies.
 22 Q. Dr. Parry didn't create any new data; correct?
 23 A. He didn't carry out any primary studies. We've
 24 already agreed to that.
 25 Q. And the data that he was summarizing is data

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1 the EPA already had in its possession and could review
 2 itself; correct?
 3 A. I believe all of the studies that Monsanto
 4 provided to Parry were either a registrant study that
 5 had already been submitted to EPA or a study in the
 6 peer-reviewed literature.
 7 Q. You would agree that EPA is capable of
 8 reviewing those studies and assessing for itself whether
 9 they show a genotoxic risk; correct?
 10 A. Yes.
 11 Q. You testified previously that Dr. Parry's
 12 report provided new information that was not previously
 13 known to the agency. What new information?
 14 A. That an internationally recognized expert in
 15 genotoxicity that Monsanto reached out to, because of
 16 his technical competence and experience, upon
 17 examination of a set of studies, reached a different
 18 conclusion than Monsanto did about the genotoxic
 19 potential of glyphosate and glyphosate-based herbicides.
 20 That is -- that is exactly the significance of
 21 Parry's work and analysis that is important in the
 22 record of this case.
 23 Q. When EPA determines whether or not pesticide
 24 poses a genotoxic risk, does it rely on the registrant's
 25 characterization of the studies or does it review the

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1 studies itself and reach a determination?
 2 A. It -- it typically relies on the registrant's
 3 characterization of the study.
 4 In certain times in history, they'd just cut
 5 and paste the registrant summaries. I think it's a
 6 matter of considerable uncertainty the degree to which
 7 EPA does a true independent assessment of some of these
 8 studies. I think that that's a cluster of issues beyond
 9 what we're dealing with in this case.
 10 But it is -- it is -- it is clear to me that
 11 Parry's integration of the results of the studies that
 12 he was asked to look at drew upon his -- his years of
 13 experience and knowledge about the various ways that
 14 exposures to a chemical can damage DNA, and that his
 15 integration, his weight-of-the-evidence judgment, if you
 16 will, to use a term of art that is also used by EPA and
 17 IARC, that his weight-of-the-evidence judgment and
 18 integration of that data was in fact a new and important
 19 scientific finding.
 20 MR. ESFANDIARY: Zach, it's two minutes to
 21 12:00. Would this be a good time to --
 22 MR. FAYNE: No. But give me a few more
 23 minutes.
 24 MR. ESFANDIARY: All right.
 25 THE WITNESS: Yeah. Let's finish this -- let's

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1 finish Parry.
 2 Q. (BY MR. FAYNE:) Is it your position that the
 3 authors of the studies that Dr. Parry reviewed were not
 4 experts in genotoxicity?
 5 A. No.
 6 Q. The authors of those studies, you would
 7 contend, were experts in genotoxicity; correct?
 8 A. Well, they conducted the studies. I don't -- I
 9 haven't reviewed the résumés of all of the scientists
 10 that conducted those studies, and particularly there
 11 would be no way to do so on the registrant-commissioned
 12 studies.
 13 Q. Let's focus specifically on the studies that
 14 were in the published literature, not the
 15 registrant-commissioned studies.
 16 Would you agree that the authors of those
 17 studies that we've been discussing, that they were
 18 qualified experts in genotoxicity?
 19 A. Yes.
 20 Q. And the authors of those studies concluded
 21 that -- they ran a study. It showed a genotoxic effect.
 22 Correct?
 23 A. Some of them, yeah.
 24 Q. And EPA had access to their conclusions,
 25 correct, because they're in the published literature?

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1 A. Correct.
 2 Q. We also discussed previously that EPA has
 3 experts in genotoxicity; correct?
 4 A. Yes.
 5 Q. They perform a weight-of-the-evidence analysis
 6 of the genotoxicity data; correct?
 7 A. That's what they said that they did, yes.
 8 Q. That includes both registrant-submitted
 9 studies; correct?
 10 A. Yes.
 11 Q. And published-literature studies; correct?
 12 A. Yes, sir.
 13 Q. And in their most recent evaluation in 2017,
 14 EPA considered the studies that Parry relied upon;
 15 correct?
 16 A. I believe that's the case, yes.
 17 Q. When I say "Parry relied upon," I mean the
 18 studies cited in Dr. Parry's reports; correct?
 19 A. Correct.
 20 Q. So in December 2017, EPA reviewed those studies
 21 and concluded that the weight of the evidence did not
 22 show glyphosate to be genotoxic; fair?
 23 A. Through the oral route of exposure based on
 24 typical levels of residues in the diet, yes.
 25 Q. Did they find glyphosate to be genotoxic

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1 through any route of exposure?
 2 A. They didn't address the other routes of
 3 exposure or the other exposure levels.
 4 Q. Your understanding is that when EPA assesses
 5 the genotoxic potential of a pesticide, it only looks at
 6 the oral route of exposure, in the case of glyphosate?
 7 A. No, that's not my understanding.
 8 Q. So did they evaluate whether glyphosate poses a
 9 genotoxic risk through other routes of exposure?
 10 A. Not to any significant extent, you know, in
 11 terms of the content of the September 2016 report. And
 12 had they done such an analysis, they would not have
 13 included the additional phrase "through the oral route
 14 of exposure." They would have said, "through the oral
 15 and inhalation or dermal routes of exposure."
 16 They clearly felt that their judgment about
 17 genotoxic risk was conditioned upon typical levels of
 18 exposure through the diet, and that's why they included
 19 that phrase in their summary statement.
 20 Q. You've never assisted a pesticide manufacturer
 21 or any other company in evaluating whether to submit
 22 information under 6(a)(2); correct?
 23 A. Some -- you know, I think some 6(a)(2) issues
 24 came up in my work for a pesticide manufacturer called
 25 Appropriate Technology Limited. I did some work with

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1 them on registration matters in the '90s.
 2 Q. You think or you -- do you recall what those
 3 6(a)(2) issues were, sitting here today?
 4 A. No, I don't. It's been a long time, but I
 5 think they were among the issues that we talked about.
 6 Q. But you're not sure sitting here today --
 7 A. Yeah.
 8 Q. -- whether they were --
 9 A. It's been a long time.
 10 Q. Have you ever published in a peer-reviewed
 11 journal about 6(a)(2) reporting requirements?
 12 A. No.
 13 Q. Ever assisted EPA in evaluating the 6(a)(2)
 14 reporting requirements?
 15 A. No.
 16 MR. FAYNE: We can take a break now if this is
 17 a good time to stop.
 18 THE WITNESS: So is this lunch?
 19 MR. KRISTAL: Yep.
 20 VIDEOGRAPHER: Off the record at 12:04 p.m.
 21 (A lunch was had from 12:04 p.m.
 22 to 1:13 p.m.)
 23 VIDEOGRAPHER: Back on the record at 1:13 p.m.
 24 Q. (BY MR. FAYNE:) Welcome back.
 25 A. Thank you.

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1 Q. I'd like to turn now to page 96 of your report.
 2 A. All right.
 3 Q. And this is a section of your report where
 4 you're discussing the TNO study; correct?
 5 A. Correct.
 6 Q. Which was a dermal penetration study?
 7 A. Yes, sir.
 8 Q. The study was conducted in 2002; correct?
 9 A. Correct.
 10 Q. And it was conducted in response to some
 11 questions from EU regulators; correct?
 12 A. That was certainly one of the motivating
 13 factors, yes.
 14 Q. And by "EU," I should say, European regulators;
 15 correct?
 16 A. Correct.
 17 Q. So performed for compliance purposes in Europe;
 18 agree?
 19 A. To augment the dossier the Germans were putting
 20 together.
 21 MR. FAYNE: I'm going to mark as Exhibit 12 the
 22 final TNO report.
 23 THE WITNESS: Thank you.
 24 MR. KRISTAL: Thank you.
 25 (Exhibit 12 marked for identification.)

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1 Q. (BY MR. FAYNE:) Turn to page 25 of 41.
 2 Actually, let me strike that.
 3 Have you seen this document before?
 4 A. Yes, sir.
 5 Q. This is the final TNO report; is that correct?
 6 A. Final of several, yes.
 7 Q. But this was the final --
 8 A. As far as I know, this is the final.
 9 Q. When you say "final of several," you mean there
 10 were several drafts before this --
 11 A. Yes.
 12 Q. -- final report; correct?
 13 A. Correct.
 14 Q. And I know, if you could let me finish my
 15 question.
 16 A. Sorry.
 17 Q. And the study is titled "In vitro percutaneous
 18 absorption study with C14 glyphosate using viable rat
 19 skin membranes"; correct?
 20 A. Correct.
 21 Q. Would you turn to page 25 of 41.
 22 A. Okay. I'm there.
 23 Q. The second paragraph states, "In general, the
 24 poor recoveries combined with the high variation within
 25 the glyphosate test groups make the data generated in

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1 this study unsuitable for risk assessment."
 2 Did I read that correctly?
 3 A. Yes, you did.
 4 Q. And you cite this statement in your report;
 5 correct?
 6 A. I do.
 7 Q. In other words, the study authors concluded
 8 that the data generated were unsuitable for risk
 9 assessment. Do you agree with that?
 10 A. Certain aspects of it.
 11 Q. Which aspects do you not agree with? Sorry,
 12 were you saying you agree with certain -- you were
 13 agreeing with the fact that the study authors stated
 14 certain aspects were not reliable for --
 15 A. Correct.
 16 Q. -- regulatory purposes?
 17 Let me ask the question again just to make sure
 18 the record is clear.
 19 The study authors concluded that the data
 20 generated are unsuitable for risk assessment; agree?
 21 A. That's -- that's what they wrote, yes.
 22 Q. Do you have any basis to disagree with their
 23 conclusion that it was not suitable for risk assessment?
 24 A. Just that there -- there are -- as they say,
 25 they're highlighting poor recoveries as one issue.

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1 There was also a lot of variability in some of the
 2 autoradiography aspects of the study, which were
 3 highlighted, but there were other aspects of the study
 4 that weren't highlighted or discussed as problematic.
 5 Q. For the areas of the study that were
 6 highlighted as problematic, do you have any basis to
 7 disagree or any reason to disagree with the author's
 8 conclusion that those aspects were not suitable for
 9 regulatory purposes?
 10 A. I think there's -- there is a history in these
 11 sorts of studies of poor recovery. Some of the
 12 Monsanto-commissioned skin penetration studies had very
 13 low recoveries. It's a -- it's a problem in aspect in
 14 skin penetration studies that scientists that do this
 15 sort of work struggle with.
 16 So I agree that the recoveries in this report
 17 were -- were low or poor, but they weren't unprecedented
 18 in terms of other studies that have been done of this
 19 sort.
 20 Q. Do you agree with the study authors that this
 21 report -- that this study was unsuitable for risk
 22 assessment?
 23 A. That's their judgment of it, yes.
 24 Q. Do you agree with that judgment?
 25 A. I think there are -- there are aspects of this

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1 study that I think are reliable for risk assessment
 2 purposes.
 3 Q. Do you agree that the study overall was not
 4 suitable for risk assessment purposes?
 5 A. I think the -- as I said, I think there's
 6 aspects of the studies that -- that were not changed
 7 through the four drafts that I know of that were not
 8 highlighted as problematic. There are certainly other
 9 aspects of the study that are highlighted as a problem
 10 and a source of concern.
 11 So I -- you know, I recognize that -- that TNO
 12 in this last version made this statement that they
 13 didn't -- they didn't feel that the study was up to
 14 snuff for risk-assessment purposes, and in fact it's why
 15 they offered to reproduce the study or redo the study at
 16 no cost, to clear up any ambiguity about the findings.
 17 Q. You state -- you just testified and you state
 18 in your report that TNO agreed to reproduce this study
 19 at no cost.
 20 A. Correct.
 21 Q. What are you relying on for that statement?
 22 A. A MONGLY e-mail where -- let's see -- through
 23 [REDACTED] or [REDACTED] one of the -- one of the
 24 Monsanto Europe scientists that were interacting with
 25 TNO directly was reporting to his colleagues about a

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1 recent interaction with TNO over the remaining questions
 2 about certain aspects of the study.
 3 Q. So your testimony is that there is an e-mail,
 4 internal Monsanto e-mail, in which they report about
 5 conversations with TNO; is that correct?
 6 A. Yes. There's several.
 7 Q. You're not aware of any e-mail from an employee
 8 or an agent of TNO suggesting that they would do the
 9 study at no cost?
 10 A. No. Just Monsanto, a Monsanto employee
 11 reporting that that's what he was told by TNO.
 12 Q. Would you agree that TNO would not agree to
 13 repeat a study at no cost if they didn't believe that
 14 there were issues with the first data generated in the
 15 first study?
 16 A. You know, I think -- I think TNO was aware of
 17 some of the issues with the recovery and the
 18 autoradiography.
 19 There's a -- this back-and-forth with TNO went
 20 on for over a year, and there's multiple e-mails in the
 21 record of where Monsanto scientists are explaining to
 22 Donna Farmer or Bill Heydens or other Monsanto officials
 23 what happened with the TNO study and what they -- what
 24 they feel it found and the risks that it posed to the
 25 future freedom to operate for glyphosate-based

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1 herbicides in Europe. There's a -- yeah, there's a
 2 very -- there's an extensive back-and-forth about it.
 3 Q. If you turn back to page 25 of the report, it
 4 also states that, "The properties of the formulation
 5 made it difficult to quantify the exact amount applied
 6 onto the skin and to guarantee contact of the fluid with
 7 the entire skin surface."
 8 A. Yes.
 9 Q. And the next sentence states, "These problems
 10 may have caused the irregular recovery and the high
 11 variation of the absorption data"; correct?
 12 A. Correct.
 13 Q. So they're identifying a number of problems
 14 with the study; correct?
 15 A. Yeah. Potential problems, potential
 16 explanations.
 17 Q. Would you agree that Monsanto was not required
 18 to submit this final report? And right now I'm just
 19 referring to the final report, that Monsanto is not
 20 required to submit this final report to EPA?
 21 A. Well, they -- I don't think they would be
 22 required to submit the final report had they submitted
 23 the first draft report, which they surely were required
 24 to submit.
 25 Q. We'll get to that in a second.

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1 A. Okay.
 2 Q. But just relying -- referring just to this
 3 final report in which the study authors conclude that
 4 the study is unsuitable for risk assessment; correct?
 5 A. I think -- I'm not -- so I'm understanding your
 6 question to be just about this version of the report,
 7 notwithstanding what happened with the earlier versions,
 8 and I -- I really don't know the details of the regs
 9 well enough to say whether they would be obligated to
 10 submit the study anyway given that there were some
 11 issues with it. I'd have to look at that in more depth.
 12 Q. That's because you're not familiar enough with
 13 the regulations to say one way or the other, sitting
 14 here today, whether this should have been reported;
 15 correct?
 16 A. It's just this is a -- a thorough answer to
 17 that question would require me to refresh my memory
 18 about which aspects of the study they've acknowledged in
 19 the body of the report.
 20 This is the -- this is the conclusions page.
 21 This is the end of it. In the body of the report, they
 22 actually talk about in more detail what some of the
 23 problems were, and I would have to evaluate whether
 24 those -- those problems, you know, rendered the whole
 25 report unreliable, or just aspects of it. That would

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1 come into play in answering your question.
 2 Q. Sir, I'm asking you what testimony you intend
 3 to offer at trial of this matter, and my question is
 4 whether you intend to testify that Monsanto had a legal
 5 obligation to submit this report to EPA?
 6 A. I will certainly testify that Monsanto had an
 7 obligation to submit one of the TNO reports. They
 8 all -- all of them have the same core finding with the
 9 exception of the revision of the dermal penetration rate
 10 for the technical glyphosate concentrate.
 11 There was a revision between the initial draft
 12 and the second draft in the skin penetration rate for
 13 the technical glyphosate from 1 point something, 1.12,
 14 to .52. That was the only change in the core findings
 15 of the report, and those core findings are stated in
 16 exactly the same way in all four versions, with the
 17 exception of that -- that one revision that happened
 18 between the first draft and the second draft.
 19 After the second draft, so in the third and
 20 fourth, that number also did not change. So what I
 21 regard as the core findings and the most important
 22 findings and certainly the most important findings to
 23 Monsanto in terms of the perceived threat to
 24 glyphosate's freedom to operate in Europe, was those
 25 core findings, which did not change from one version of

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1 the report to the final version.
 2 Q. We were discussing previously that in this
 3 final report, the study authors identified a number of
 4 problems with the study that made it unsuitable for risk
 5 assessment; correct?
 6 A. That is what they say, yes.
 7 Q. Were those same issues present in the prior
 8 version of the study?
 9 A. Not all of them. The discussion of the
 10 problems, I don't believe there was really any in the
 11 initial draft. I think there was some in the second
 12 draft, quite a bit more in the third draft, and
 13 not -- not many changes between three and four.
 14 Q. And I'm not asking you about the discussion of
 15 the problems. I'm asking you about the problems with
 16 the data itself.
 17 They didn't recreate the study; correct?
 18 They generated data once and then wrote several
 19 drafts --
 20 A. Correct.
 21 Q. -- of the report; right?
 22 A. Right. It was the interpretation of the same
 23 set of analytical results.
 24 Q. So the data issues they identified in this
 25 final report, those would have been present for the

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1 first draft, the second draft, the third draft, et
 2 cetera; correct?
 3 A. Correct. I understand what you're getting at
 4 now. Yes.
 5 Q. So fair to say that the study authors would
 6 have reached the same conclusion with respect to
 7 draft one, that it was not suitable for risk assessment
 8 purposes; correct?
 9 A. No, I can't -- I can't say that. I mean, it's
 10 a hypothetical.
 11 After this series of communications with
 12 Monsanto that extended over a whole year where Monsanto
 13 was extremely upset about the findings of the study,
 14 didn't want to -- didn't believe them, felt that there
 15 was something wrong with the study, at the end of that
 16 discussion, the TNO people agreed to put in this
 17 paragraph that said they didn't -- they felt that the
 18 poor recoveries and some of the other problems with the
 19 study render it unsuitable for risk-assessment purposes.
 20 That's -- that's what TNO has said. TNO did
 21 not retract the empirical findings, the core empirical
 22 findings, which I would have expected them to do if they
 23 felt they were unreliable.
 24 Q. In the final report, TNO identifies poor
 25 recoveries; correct?

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1 A. Correct.
 2 Q. Those poor recoveries would have existed at the
 3 time of the first draft of that report; correct?
 4 A. Correct.
 5 Q. TNO also identifies in the final report high
 6 variation within the test groups; correct?
 7 A. Correct.
 8 Q. That high variation would have been present at
 9 the time of the first draft of the report as well, too;
 10 correct?
 11 A. Correct.
 12 Q. You've testified today and stated in your draft
 13 report -- or, excuse me. Strike that.
 14 You testified today and stated in your report
 15 that your opinion is that Monsanto should have submitted
 16 the draft TNO report; correct?
 17 A. Yes, sir.
 18 Q. You agree that that draft report did not have a
 19 signed GLP compliance statement; is that correct?
 20 A. No, I don't agree with that.
 21 Q. Okay. Why don't we --
 22 A. Yeah. Let's take a look. There's a -- there's
 23 a bunch of forms at the beginning of it, at least in the
 24 beginning of the one that I...
 25 So I guess the signed -- those signed -- wait.

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1 Yeah, here. Here they are.
 2 So there's quality assurance statement on
 3 page 6. There's a statement of GLP compliance on
 4 page 5. There's a testing facility acknowledgment on
 5 page 8, and a GLP compliance monitoring unit statement
 6 on page 7.
 7 Q. And sorry to -- sorry to interrupt, but you're
 8 looking at the final report; correct?
 9 A. Oh, okay.
 10 Q. I'll --
 11 A. Yes.
 12 Q. I'm going to mark as Exhibit 13 --
 13 A. Now, don't you be tricking me that way.
 14 Q. I wasn't trying to, trust me.
 15 MR. FAYNE: I'm going to mark as Exhibit 13 the
 16 June 14th, 2002, draft TNO report.
 17 MR. KRISTAL: Thank you.
 18 (Exhibit 13 marked for identification.)
 19 THE WITNESS: Okay. I have this in front of
 20 me.
 21 Q. (BY MR. FAYNE:) So if you turn to page 4 of
 22 35, you'll see that there's a statement of GLP
 23 compliance. Do you see that?
 24 A. Yes.
 25 Q. And you see that the statement of GLP

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1 compliance was not signed by the study director.
 2 A. Correct.
 3 Q. Correct?
 4 A. Correct.
 5 Q. You would agree with me that GLP compliance
 6 statements are an important part of any GLP study?
 7 A. Of course.
 8 Q. It allows the -- anyone reading the study to
 9 understand that it was conducted pursuant to good
 10 laboratory practices; correct?
 11 A. Correct.
 12 Q. And until the study director signs that
 13 statement, there's no guarantee that the study has been
 14 conducted in accordance with good laboratory practices;
 15 correct?
 16 A. Well, certainly not from the laboratory.
 17 Q. Can you turn to page 5 of 35? There's a
 18 quality assurance statement. Do you see that?
 19 A. Yep.
 20 Q. And about two-thirds down the page there's a
 21 statement about the report being audited; correct?
 22 A. Yes.
 23 Q. And that section is not filled out yet because
 24 this report --
 25 A. Right.

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1 Q. -- had not yet been audited; correct?

2 A. Correct. It states right upfront it's the

3 unaudited draft report.

4 Q. Would you agree with me that the data that the

5 study authors relied upon in the final report were the

6 same as the data that they were relying upon in this

7 draft report? Correct?

8 A. They -- they re-did a few of the calculations,

9 and they -- as I said, they did make an adjustment in

10 one of the core findings, but that was done between

11 draft report number 1 and the second version and did not

12 change in the subsequent two versions.

13 Q. Between draft report number 1 and the final

14 report, TNO didn't conduct any new primary studies;

15 correct?

16 A. Yes, sir. That's my understanding.

17 Q. As I understand your report, your opinion is

18 that draft reports such as this draft TNO report should

19 be submitted to EPA; correct?

20 A. Yeah. It would fall under the category of a

21 preliminary report. That's the term that EPA uses

22 in -- or maybe it's from the U.S. Congress -- in the

23 6(a)(2) statute.

24 Q. So based on your review of the statute and

25 presumably EPA's regulations, it's your opinion that

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1 Monsanto had a legal obligation to submit this report?

2 A. Yes.

3 Q. So your view is that EPA would have wanted to

4 rely on this draft report over the final report which

5 said that it was not suitable for risk-assessment

6 purposes?

7 A. I didn't say that.

8 Q. So do you agree that the final report is more

9 important to EPA's review of glyphosate?

10 A. Typically final reports are more refined and

11 often include additional analyses that may have been

12 done between when the initial draft report was done, but

13 I think the critical feature of the TNO -- this TNO

14 project and report was that the core findings, the most

15 important findings, the findings that were of great

16 concern to Monsanto, did not change between the initial

17 draft report and the fourth -- the final version, with

18 the exception of the one number that I mentioned

19 already.

20 Q. And those core findings are the same findings

21 that TNO said in the final report were unsuitable for

22 risk assessment; correct?

23 A. They didn't specifically say that those

24 findings were unsuitable.

25 Q. They did say that the data generated in the

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1 study were unsuitable for risk assessment; correct?

2 A. Yeah, they said -- you know, they said data

3 that was generated in the study was unsuitable.

4 Q. So if the data generated in the study was

5 unsuitable, wouldn't that suggest that the core findings

6 of the study were unsuitable?

7 A. If TNO had felt all of the data was unsuitable,

8 I think they would have deleted the findings from the

9 study.

10 Q. What's your basis for speculating that TNO

11 would have deleted the findings from the study?

12 MR. KRISTAL: Objection to the form.

13 A. If they felt that they were unreliable and

14 unsuitable for any use, including risk assessment, they

15 would have deleted the -- deleted the findings.

16 Q. How do you know that TNO would have deleted the

17 findings?

18 A. How do I know? Well, I guess I don't. I'm not

19 part of their organization. I don't know what their

20 policies are.

21 But just a read of their studies, it is pretty

22 clear the areas of the study where there were issues

23 that were discussed between the Monsanto scientists and

24 the TNO scientists, issues which were identified in the

25 later versions of it as -- in particular, the poor

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1 recoveries and the -- some issues with the

2 autoradiography. Those are discussed in increasing

3 detail in the third and then final version of the

4 report.

5 But there's -- there's no discussion in any of

6 the versions of the reports about the core main

7 findings. And my -- my sense is that, if they had felt

8 that those findings were also incorrect, that they would

9 have changed them or deleted them.

10 Q. In paragraph 17 of your report, you

11 state -- and you're welcome to turn to it, but you

12 probably don't need to. I'll read it to you. You can

13 tell me if you need to turn to it.

14 MR. KRISTAL: Well, he's not going to be able

15 to acknowledge if you read it correctly unless he's

16 memorized --

17 MR. FAYNE: Okay.

18 MR. KRISTAL: -- the report.

19 THE WITNESS: So are we talking page 17?

20 MR. FAYNE: Paragraph 17. Go ahead.

21 THE WITNESS: Okay. Won't take me long to get

22 there. Okay. I'm there, sir.

23 Q. (BY MR. FAYNE:) You state, "At several stages

24 in the regulatory history of glyphosate and Roundup

25 brand herbicides, this report documents episodes in

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1 which I conclude Monsanto failed to meet obligations
 2 imposed on it by federal law and EPA regulations."
 3 Did I read that correctly?
 4 A. Yes.
 5 Q. I understand from your prior testimony today
 6 that you contend that Monsanto should have submitted the
 7 Parry report and TNO study to EPA; correct?
 8 A. Correct.
 9 Q. Other than those two events, can you identify
 10 for me any other action that you claim Monsanto took
 11 that violated federal law or EPA regulations?
 12 A. In the 1986 registration standard, EPA imposed
 13 on glyphosate registrants -- which at the time were only
 14 Monsanto -- a requirement to add a number of worker
 15 safety provisions onto the label. They gave them until
 16 June of 1988, I believe. I don't remember the exact
 17 date. It's in my report. Monsanto refused to add those
 18 additional worker safety provisions onto the label, and
 19 to this date they're not on the label.
 20 EPA requested Monsanto to do a repeat mouse
 21 oncogenicity study to resolve the issues in the 1983
 22 Bio/dynamics study. Monsanto refused to conduct that
 23 study. After the resectioning of the slides and the
 24 even deeper controversy over the 1983 study, EPA
 25 designed a special study designed to resolve the kidney

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1 tumor issue in the Bio/dynamics mouse study, and
 2 Monsanto refused to carry that study out.
 3 In the reregistration -- again, the
 4 registration standard document of 1986, Monsanto called
 5 for a repeat mouse and a repeat rat study, and
 6 they -- the mouse study was not done. There was a rat
 7 study underway that was subsequently submitted to EPA
 8 and which satisfied that data requirement. Those are
 9 the main ones that I can recall.
 10 Q. So let me just parse that very briefly. You
 11 contend that Monsanto violated EPA regulations by not
 12 adding the worker safety provisions set forth in the
 13 1986 registration standard; correct?
 14 A. Correct.
 15 Q. You contend that Monsanto violated the EPA
 16 regulations by failing to resolve the issues in the 1983
 17 Bio/dynamics study; correct?
 18 A. Well, failing to repeat it. That was the first
 19 request that EPA made of Monsanto, but -- and then there
 20 was a subsequent request to do this more -- this sort of
 21 specially designed and statistically powerful study to
 22 settle the issue over the kidney tumors, and those are
 23 the primary ones that I spend -- you know, that I
 24 discuss in my report.
 25 Q. So just to make sure I'm clear, your contention

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1 is that by not repeating the mouse study in the 1980s,
 2 Monsanto was in violation of EPA regulations; correct?
 3 A. When -- when the agency puts a requirement in a
 4 registration standard document and states that it must
 5 be done by a particular date, if a registrant doesn't do
 6 that, then they haven't followed an EPA requirement,
 7 yeah.
 8 Q. Are you aware of whether EPA ever made a
 9 finding that EPA was in violation of a regulatory
 10 requirement?
 11 A. You mean that Monsanto was in violation?
 12 Q. Yeah. Let me restate the question. Thank you.
 13 A. Okay.
 14 Q. Are you aware of whether EPA ever made a
 15 finding that Monsanto was in violation of a regulatory
 16 requirement?
 17 A. You know, I don't -- I'm not aware of a -- I
 18 guess I am aware that there were -- there were formal
 19 findings on some inappropriate advertising that the
 20 enforcement division of EPA investigated and forced
 21 Monsanto to change the content of some advertising which
 22 was not in compliance with EPA regulations for truthful
 23 advertising. I think there was maybe four episodes of
 24 that; one or two in Iowa, a couple in New York, and
 25 maybe one or two others.

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1 Q. So I'll come back to that later. I'm referring
 2 specifically to the two violations that you asserted a
 3 few minutes ago. So the first -- strike that.
 4 You testified that Monsanto was in violation of
 5 EPA regulations by not adding the worker safety language
 6 from the 1986 registration standard; correct?
 7 A. When EPA establishes a requirement in a
 8 registration standard and states that it should be done
 9 by X date, if the registrant doesn't do that, then, yes,
 10 they would be in violation of a requirement in a
 11 registration standard, and it's part of EPA regulations
 12 that registrants have to do what's in a registration
 13 standard to maintain their registrations.
 14 Q. Are you aware of whether EPA ever made a
 15 finding in connection with that 1986 registration
 16 standard that Monsanto was in violation of the labeling
 17 requirements?
 18 A. I'm not aware if they did or not.
 19 Q. You also testified that you believe Monsanto
 20 was in violation of the EPA regulations for refusing to
 21 conduct the repeat mouse study in the 1980s; correct?
 22 A. Correct.
 23 Q. Are you aware of whether EPA ever made a
 24 finding that Monsanto was in violation of the EPA
 25 regulations in connection with that event?

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1 A. No, I don't -- I don't believe they ever made a
 2 finding. It was just a debate over mouse oncogenicity,
 3 you know, that has persisted now for 30 years.
 4 Q. Do you have any knowledge of the communications
 5 between Monsanto -- strike that.
 6 In your report you detail a number of
 7 communications between Monsanto and EPA in the 1980s;
 8 correct?
 9 A. Yes.
 10 Q. Some of those relate to the 1986 registration
 11 standard; correct?
 12 A. Yes. Yes.
 13 Q. And as we were just discussing in that
 14 registration standard, EPA set forth a requirement for
 15 certain labeling provisions related to worker safety;
 16 correct?
 17 A. Correct.
 18 Q. Other than what you've spelled out in your
 19 report, are you aware of any other conversations or
 20 communications between EPA and Monsanto regarding the
 21 labeling requirements in the 1986 registration standard?
 22 A. Yes.
 23 Q. What communications?
 24 A. Well, dialogue that went on between the 1986
 25 registration standard and the 1993 R.E.D. I mean, it

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1 was an ongoing discussion about what additional worker
 2 safety provisions should be on all of the Roundup
 3 labels.
 4 Q. So you agree that there was an ongoing
 5 discussion --
 6 A. Oh, yes.
 7 Q. -- between Monsanto and EPA about what language
 8 should go on the label; correct?
 9 A. Correct.
 10 Q. And you would agree with me that you're not
 11 aware of every conversation or communication between
 12 Monsanto and EPA related to that subject; correct?
 13 A. Well, I certainly am sure there were many
 14 face-to-face meetings where there's no record of what
 15 was -- what transpired, you know, during the meeting.
 16 So, yes, I couldn't possibly be aware of all of them.
 17 Q. Would you agree with me that ultimately EPA
 18 must approve every label on a formulated pesticide
 19 product?
 20 A. Well, every new label that is approved and then
 21 eligible to go on a pesticide product, yes.
 22 Q. So Monsanto couldn't label its products with
 23 certain language unless it had EPA's approval to do so;
 24 correct?
 25 A. Correct.

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1 MR. KRISTAL: You mean the actual label? Label
 2 can mean advertising, marketing.
 3 MR. FAYNE: Sure.
 4 Q. (BY MR. FAYNE:) So EPA -- Monsanto couldn't
 5 put language on the label of its pesticide product
 6 without EPA approval; correct?
 7 A. Yes. That's correct.
 8 Q. EPA will not approve a label unless, in its
 9 view, the label directions and safety precautions are
 10 sufficient to ensure that the pesticide will not cause
 11 any unreasonable adverse effect on man or the
 12 environment; correct?
 13 A. That's the basic standard in the FIFRA statute,
 14 and it's certainly the goal and the hope of EPA and
 15 registrants that all provisions that go onto labels will
 16 achieve that.
 17 But in the case of the worker safety provisions
 18 in the 1986 registration standard which EPA felt were
 19 required to and justified to reduce applicator,
 20 mixer/loader exposures, those -- those were never put
 21 onto the label because Monsanto refused to do so, argued
 22 that they weren't needed, argued that there was a
 23 generic revision of the worker safety standard that was
 24 moving through the system and that any final action on
 25 additional worker safety provisions on the labels should

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1 be deferred until that was completed, and on and on and
 2 on.
 3 And, you know, basically Monsanto disagreed
 4 with the EPA over the need for any additional worker
 5 safety provision, so there's really no substantial
 6 additional worker safety provision put on a -- on a
 7 Roundup label that I'm aware of since the mid '80s.
 8 So EPA thought additional provisions were
 9 justified and said so in the 1986 registration standard,
 10 and they were -- and Monsanto did not feel they were
 11 justified, and EPA didn't -- did not feel it was
 12 warranted to start a cancellation action over that
 13 disagreement, and so they never appeared on the label.
 14 Q. You would agree with me that ultimately EPA
 15 accepted Monsanto's position. Otherwise, they would not
 16 have approved Monsanto's labels; correct?
 17 A. I can't think of a -- of a single case where
 18 EPA cancelled the registration of a pesticide over, you
 19 know, a work -- you know, a single worker or a, you
 20 know, a half dozen worker safety provisions. It just --
 21 it never was done. I'm not aware of any example of
 22 that.
 23 And I clearly don't -- I think it would be hard
 24 for me to imagine how EPA could justify or politically
 25 withstand the reaction if they had tried to cancel

<p style="text-align: right;">Page 182</p> <p>1 Roundup over those -- those -- that page and a half of 2 additional worker safety provisions that Monsanto 3 refused to put on its label. 4 So EPA had a choice, and they -- they were not 5 willing to exercise their legal right to initiate a 6 cancellation action, and so Monsanto prevailed in 7 that -- in that event. 8 Q. Just to understand -- strike that. 9 Just to make sure I understand your testimony, 10 you're suggesting that if EPA had stated that it was 11 going to cancel the pesticide registration if Monsanto 12 didn't put the worker safety language on the label, that 13 Monsanto would have played a game of chicken and waited 14 for EPA to cancel the registration? 15 A. Well, that -- that is the only -- that would be 16 the only option that -- given that it's Monsanto's 17 responsibility to generate the labels and to also write 18 any alternative label language in a label amendment, the 19 changes on the label have to come from Monsanto and be 20 submitted to EPA. 21 Monsanto was unwilling to propose adding the 22 additional worker safety provisions on any of the 23 Roundup labels. EPA could have initiated a cancellation 24 action for Monsanto's failure to comply with a 25 requirement in the 1986 registration standard. They</p>	<p style="text-align: right;">Page 184</p> <p>1 at any one time over the history of glyphosate-based 2 herbicides manufactured and sold by Monsanto, there's 3 probably 90 percent of the volume is from six or so 4 different formulations, or very modest changes in them. 5 Q. Anytime Monsanto, or any pesticide 6 manufacturer, introduces a new end-use product, they 7 have to get approval from the EPA for the label; 8 correct? 9 A. That's correct. 10 Q. So any time after 1986 that Monsanto wanted to 11 introduce a new glyphosate-based product, it would have 12 to get approval from the EPA for the label on that 13 product; correct? 14 A. Correct. 15 Q. Isn't it the case, Dr. Benbrook, that the EPA 16 could reject any of those applications for a new end-use 17 product if it didn't agree with the worker safety 18 language on the product label? 19 A. Yeah, technically they could, but what -- what 20 would be the point, because the existing registrations 21 would stay on the books and be active? It wouldn't end 22 the use of the -- of the herbicide. 23 Q. But without EPA approval, Monsanto wouldn't be 24 able to introduce new glyphosate-based products; 25 correct?</p>
<p style="text-align: right;">Page 183</p> <p>1 were clearly within their rights to do that. 2 They could have done it, but they did not do 3 it, and in my professional judgment, they did not do it 4 because they felt that it was not a significant enough 5 of a concern to entail the administrative and political 6 cost of trying to cancel a widely-used herbicide. 7 Q. Is your testimony that if EPA does not agree 8 with the language that a pesticide manufacturer proposes 9 for its label, its only option is to cancel the 10 registration? 11 A. Well, so you're talking about a situation where 12 there is an existing registration, a valid federal 13 registration for -- for a glyphosate-based herbicide. 14 If -- if Monsanto chose not to add the, say, the worker 15 safety provisions that were in the '86 registration 16 standard onto that label, that label remains in effect 17 and the herbicide could continue to be used until such a 18 point in time when EPA initiated a cancellation action 19 and actually, you know, carried it through to the end. 20 Q. There are hundreds of Roundup formulations; 21 correct? 22 A. There are something on the order of 125 23 registered products. There are clearly not a hundred 24 different formulations. Many different products have 25 essentially the same formulation. There's probably --</p>	<p style="text-align: right;">Page 185</p> <p>1 A. Yeah. If the EPA denied an application for a 2 new version of Roundup, they could do that, yes. 3 Q. Are you aware of the EPA ever denying an 4 application for a new version of Roundup based on 5 failure to include the worker safety language from the 6 1986 registration standard? 7 A. I know there were -- there were a few requests 8 that didn't go through. I can't -- I can't recall 9 whether they were just label amendments or wholly-new 10 products, and I don't recall whether the worker safety 11 provisions or lack thereof was the primary reason or one 12 of the reasons. I'd have to research the registration 13 file to answer that. 14 Q. So sitting here today, you cannot say that 15 you're aware of any instance in which EPA denied an 16 application for a new version of Roundup based on 17 failure to include the worker safety language from the 18 1986 registration -- 19 A. Yeah, that's what I said. I can't -- I can't 20 think of one. I'm not -- I'm not convinced that there 21 aren't any, but I can't think of them. 22 Q. I'd like to go to paragraph 391 of your report. 23 A. I'm there. 24 Q. So this is your discussion of the new worker 25 safety language --</p>

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1 A. Yes.
 2 Q. -- in the 1986 registration standard; correct?
 3 A. Uh-huh. Correct.
 4 Q. And paragraph 391, you note the EPA's primary
 5 concern that led to their decision to include this
 6 language in the registration standard document was eye
 7 and skin irritation; correct?
 8 A. Correct.
 9 Q. Not cancer; correct?
 10 A. Correct.
 11 Q. Turn to page 398.
 12 A. Paragraph 398.
 13 Q. I'm sorry.
 14 A. It's all right.
 15 Q. I'll get it right one of these times.
 16 A. You got it right the time before.
 17 Q. You quote from the registration standard
 18 document; correct?
 19 A. We're talking 399?
 20 Q. 398.
 21 A. Oh, okay. Yes.
 22 Q. And you quote from that document that, "Worker
 23 safety rules must appear on end-use products containing
 24 glyphosate, except for those labeled for homeowner use
 25 only"; correct?

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1 A. Correct.
 2 Q. And that is consistent with the current EPA
 3 regulations which require worker safety statements only
 4 on products that bear directions for use in agriculture;
 5 correct?
 6 A. There's a lot in that question. In the
 7 registration standard this language was not required on
 8 the home use end-use products that had a very low
 9 concentration. I believe 3 percent was the cutoff,
 10 so...
 11 Q. So you agree that under the 1986 registration
 12 standard, Monsanto was not required to add the new
 13 worker safety language on products labeled for homeowner
 14 use only; correct?
 15 A. Correct. Yes.
 16 Q. Do you know whether the glyphosate-based
 17 products used by Mrs. Stevick were labeled for homeowner
 18 use only?
 19 A. I didn't -- as I said in the beginning, I've
 20 not reviewed any case-specific information.
 21 Q. So you do not know whether the glyphosate-based
 22 products used by Mrs. Stevick were labeled for homeowner
 23 use only; correct?
 24 A. I don't know what products she used so I can't
 25 answer the question.

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1 Q. You also don't know what products Mr. Hardeman
 2 used; correct?
 3 A. Correct.
 4 Q. Or what products Mr. Gebeyehou used?
 5 A. Also correct.
 6 Q. You agree that EPA has sole authority within
 7 the federal government to approve pesticide
 8 registrations; correct?
 9 A. What -- EPA does provide some authority to
 10 state departments of agriculture to do certain
 11 state-specific registrations, but that authority is in
 12 effect transferred from the EPA, so I think we're in
 13 agreement.
 14 Q. So you agree that EPA has sole authority within
 15 the federal government to approve pesticide
 16 registrations; correct?
 17 A. Yes.
 18 Q. And that means every pesticide sold and
 19 distributed in the United States must be registered and
 20 approved by EPA; correct?
 21 A. Correct.
 22 Q. We were discussing previously that EPA has
 23 authority to cancel or suspend a pesticide registration;
 24 correct?
 25 A. We spoke about that some, yes.

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1 Q. And you state in your report at paragraph 179
 2 that, "As of 1994, cancer risk was the most commonly
 3 cited reason for pesticide cancellation and suspension
 4 actions."
 5 A. Correct.
 6 Q. Has the EPA ever cancelled or suspended the
 7 registration of glyphosate?
 8 A. No.
 9 Q. Would you agree with me that EPA endeavors to
 10 apply a health-protective approach when it evaluates
 11 pesticides?
 12 A. Not always.
 13 Q. So your testimony is that EPA does not always
 14 apply a health-protective approach?
 15 A. Correct.
 16 Q. In what circumstances does it not apply a
 17 health-protective approach?
 18 A. A highly -- in the case of contested regulatory
 19 actions, EPA has been forced politically to reach
 20 compromises with registrants to bring about a degree of
 21 risk reduction when in fact the agency would have
 22 preferred and felt that a greater degree of risk
 23 reduction was probably warranted.
 24 The EPA -- the regulatory process and the
 25 interactions with registrants on high-risk pesticides,

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1 it is a bit of a dance, and EPA doesn't always get
 2 everything that it feels is justified or warranted.
 3 And so, you know, I -- I do believe that EPA
 4 has fallen short of bringing about the degree of risk
 5 reduction that -- that certainly their own reports seem
 6 to consider justified.
 7 Q. You would agree that under FIFRA, EPA is
 8 required to ensure that any pesticide registered for use
 9 in the United States does not pose an unreasonable risk
 10 to human health or the environment. Is that fair?
 11 A. That's the basic standard for adverse effect,
 12 is the term of art, not risk.
 13 Q. And you would also agree with me that under the
 14 Food Quality Protection Act of 1996, EPA must find that
 15 a pesticide poses a, quote/unquote, reasonable certainty
 16 of no harm before it can be registered for use on food;
 17 correct?
 18 A. Correct. Well, it's actually they have to
 19 determine that there's a reasonable certainty of no harm
 20 from establishing a pesticide tolerance. The tolerance
 21 must be in place before EPA will consider a registration
 22 application authorizing the use of the pesticide on the
 23 food crop for which the tolerance applies.
 24 Q. Okay. In your prior depositions you've been
 25 asked about EPA's data requirements; correct?

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1 A. Yes.
 2 Q. And I don't want to go through those at length
 3 again today, but EPA does have a prescribed set of data
 4 requirements for pesticide registration; correct?
 5 A. Yes.
 6 Q. And those cover a number of different areas
 7 such as product performance, toxicology, human exposure;
 8 correct?
 9 A. They -- there's no longer any requirement for
 10 product performance data except in the case of
 11 antimicrobial pesticides. That used to be part of the
 12 requirements but it dropped out I think in the '72 or
 13 '78 amendments to FIFRA.
 14 Q. And as I understand, both from your expert
 15 report and your prior deposition testimony, you do not
 16 intend to testify that Monsanto failed to comply with
 17 mandatory data requirements that are set forth in the
 18 regulations at Part 158; is that correct?
 19 A. With the exception of the circumstances and
 20 incidents that I've already discussed relative to the
 21 replacement of the mouse onco study, replacement rat
 22 study, and the study that was -- the special study that
 23 was designed.
 24 You know, one could -- certainly the
 25 replacement rat study would have been a core -- a core

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1 data requirement. The special study that was designed
 2 by EPA to resolve the lingering uncertainty over the
 3 kidney tumors, that -- that's not a study that was part
 4 of the core data requirements. It would be an
 5 additional study.
 6 Q. EPA also has authority to require registrants
 7 to submit additional studies and data; correct?
 8 A. Correct.
 9 Q. So EPA is not limited by the data requirements
 10 in Part 158; fair?
 11 A. Correct.
 12 Q. If EPA doesn't believe the information required
 13 under Part 58 -- 158 is sufficient to evaluate the
 14 potential of a product to cause harm, it can require
 15 that additional data be submitted; fair?
 16 A. Very -- very true.
 17 Q. And that could be through a formal data call-in
 18 or a more informal request to the registrant; correct?
 19 A. Correct.
 20 Q. EPA can also waive data requirements; correct?
 21 A. Correct.
 22 Q. And it might do that if the data might not be
 23 useful to the agency's evaluation?
 24 A. Yeah. Because, for example, they have a very
 25 similar study.

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1 Q. Right. So they might have a similar study or
 2 it might be an irrelevant route of exposure; correct?
 3 A. Correct.
 4 Q. I'd like to turn now, since we've been talking
 5 about it a bit already, to your discussion of the 1983
 6 mouse study --
 7 A. Okay.
 8 Q. -- which starts on page 64 of your report.
 9 A. Yes, sir. I'm there.
 10 Q. So this section refers to the long-term cancer
 11 study in mice that Monsanto submitted to EPA in 1983;
 12 correct?
 13 A. Yes.
 14 Q. And you state on page 4 of your report that
 15 this -- sorry. Page 4, paragraph 6(b).
 16 A. I'm there.
 17 Q. That this was the first valid chronic -- first
 18 chronic -- sorry, first valid chronic oncogenicity study
 19 on glyphosate; correct?
 20 A. Yes.
 21 Q. So you agree that the 1983 long-term cancer
 22 study in mice was a valid study?
 23 A. Yes.
 24 Q. So going back to Section 6 of your report where
 25 we just were. This is on page 64.

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1 A. Got it.

2 Q. So in this section, you summarize in detail the

3 back-and-forth between Monsanto and EPA. Is that a fair

4 characterization?

5 A. Yes.

6 Q. Summarize documents from the public record and

7 internal Monsanto e-mails; true?

8 A. Correct. Most of the material on the 1983

9 Bio/dynamics study is in the public -- in the public

10 domain. EPA cleared dozens of documents, and I -- I had

11 already downloaded those and studied them for other

12 projects that I've been involved with.

13 Q. I know you've testified about these events in

14 prior depositions, so I just want to walk through a few

15 aspects of it, if that's okay.

16 A. That would be fine.

17 Q. You state in paragraph 277 of your report that

18 "Bio/dynamics concluded in its report that the slightly

19 increased incidence of adenomas in the high-dose males

20 was considered spurious and unrelated to glyphosate

21 administration."

22 Did I read that correctly?

23 A. Yes, you did.

24 Q. EPA initially reviewed the Bio/dynamics report

25 and disagreed with that conclusion; correct?

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1 A. That's correct.

2 Q. So EPA did not simply accept Monsanto's

3 interpretation of the results; it pushed back on them?

4 A. It did.

5 Q. And then as you summarize here -- and again, I

6 don't want to walk through this in too much detail

7 today, but that set off a long series of back-and-forth

8 between Monsanto and the agency; fair?

9 A. Absolutely fair.

10 Q. Monsanto submitted several letters setting

11 forth its position; correct?

12 A. Correct.

13 Q. EPA provided responses in various letters and

14 memoranda; correct?

15 A. Yes.

16 Q. EPA convened multiple meetings of senior

17 scientists?

18 A. Correct.

19 Q. Monsanto representatives met with the EPA on

20 multiple occasions?

21 A. Yes.

22 Q. EPA requested that the kidney slides be

23 resected and reevaluated; correct?

24 A. That is an outcome that occurred. It was not

25 initiated by EPA.

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1 Q. So the kidney slides were resected and

2 reevaluated; correct?

3 A. Monsanto took it upon themselves to do it and

4 was hopeful that that would reopen the consideration of

5 the renal tubular adenomas in the mouse study.

6 Q. The agency also convened a scientific advisory

7 panel to evaluate the study; correct?

8 A. Actually a couple of them, but yes.

9 Q. And so over this period of time, which spanned

10 from roughly 1983 through 1986, is it fair to say that

11 EPA engaged multiple experts to review this study?

12 A. No. No. Monsanto did. Monsanto convened

13 several consultants to support its arguments to the

14 agency, but the number of people inside EPA that looked

15 at the study, that didn't change much. It was Lacayo

16 and Reto Engler and Kasza, the pathologist, and Dykstra.

17 They were -- and Farber, of course, was the deputy, the

18 head of the division. That cast of characters didn't

19 change much in the five-year period.

20 Q. Would you agree with me that EPA as a body

21 devoted a tremendous amount of time and attention to

22 this single study?

23 MR. KRISTAL: Objection.

24 A. Absolutely.

25 Q. Do you contend that Monsanto made any material

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1 misrepresentation to the agency in connection with the

2 1983 mouse study?

3 A. What do you mean by "material"?

4 Q. Let me take out the word "material." Do you

5 contend that Monsanto misrepresented any fact to the

6 agency in connection with that 1983 mouse study?

7 A. Well, yeah, they did some.

8 Q. What did they misrepresent?

9 A. They clearly -- in Frank Serdy's letter back to

10 I can't remember if it was Doug Camp, but one of the

11 officials in the chain of command, he represented that

12 all of the consulting experts that Monsanto invited to

13 the SAP meeting testified that there was no basis or

14 justification to do a repeat mouse study, when none of

15 them said anything about that.

16 Q. Other than that incident that you just referred

17 to, can you think of any other misrepresentation that

18 Monsanto made to the agency in connection with the 1983

19 mouse study?

20 A. I think it's fair to say that Monsanto often

21 provided EPA with information that deviated from what

22 the agency had actually requested. It was sort of in

23 addition to and not fully responsive, but I don't think

24 that would rise to the threshold that you've embedded in

25 your question of purposely misleading.

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1 Q. So other than the statement that you referred
 2 to about -- strike that.
 3 So other than Frank Serdy's statement about
 4 what various members of the SAP testified, you're not
 5 aware of any misrepresentation by Monsanto in connection
 6 with this mouse study; correct?
 7 A. I think the -- the word "misrepresentation" is
 8 a fluid one, and I think the zeal with which Monsanto
 9 always represented information about this 1983 mouse
 10 study to the EPA was so consistently biased in favor of
 11 and in the direction of Monsanto's read of the study and
 12 hoped for evaluation of the study by -- by EPA that I
 13 think it could be characterized as really getting into
 14 the misrepresentation category.
 15 Q. You would agree with me that it's not unusual
 16 for registrants to communicate with EPA about a
 17 particular study; correct?
 18 A. No, it's -- it's common.
 19 Q. It's also common that registrants would try to
 20 persuade the agency that their interpretation of the
 21 data was correct?
 22 A. That is also common.
 23 Q. And are you contending today that trying to
 24 persuade the agency amounts to misrepresentation?
 25 A. It depends on how far it goes and what tactics

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1 are used and how -- how willing the registrant is to
 2 respond to the request for information that the agency
 3 provides to them along the way.
 4 Another example would be literally on the day
 5 that Monsanto found out that Dykstra's review of the
 6 Bio/dynamic study was going to identify oncogenic
 7 potential because of the renal tubular adenomas,
 8 Dr. Gingerich, who was one of the scientists working in
 9 the Washington office of Monsanto, had at least two
 10 meetings and I think two phone calls with senior
 11 officials in OPP on the very day that he heard about it.
 12 And in his conversation with Bill Burnham, who
 13 at the time, I believe, was the deputy director of HED,
 14 Burnham said, "Well you could provide us additional data
 15 on historical controls from the same laboratory and
 16 around the same period of time."
 17 And, you know, this is -- to me it was sort of
 18 extraordinary that on the very day that Monsanto found
 19 out about this -- this pending EPA review and conclusion
 20 based on the study, that they -- that they had had these
 21 conversations.
 22 But when Monsanto, five or six months later,
 23 submitted historical control data to the EPA in response
 24 to Dr. Burnham's request, it included data from other
 25 labs and data from outside the time period that had been

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1 identified.
 2 So it's an example of where Monsanto really
 3 didn't do what EPA asked it to do and sort of muddied
 4 the water by including historical control data from
 5 other labs, which basically EPA wasn't going to pay much
 6 attention to anyway.
 7 Q. But you don't contend that Monsanto manipulated
 8 or misrepresented the historical control data; correct?
 9 A. No, didn't say that.
 10 Q. And my question to you is whether Monsanto
 11 misrepresented any fact, and so far I haven't heard one
 12 that they've misrepresented, but correct me if that's
 13 wrong.
 14 MR. KRISTAL: Objection to the form of the
 15 question.
 16 A. I've already discussed the one example in the
 17 record that I would -- where there is clear evidence
 18 that Monsanto did misrepresent facts.
 19 Q. So you would agree that other than that one
 20 example, there's not clear evidence that Monsanto
 21 misrepresented a fact; correct?
 22 A. There's not clear evidence that I've had a
 23 chance to review yet. I would certainly not sit here
 24 and say that there isn't clear evidence in the record.
 25 Q. Let's turn to paragraph 320 of your report.

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1 And in this paragraph you describe that
 2 Monsanto in the April through May 1985 period --
 3 A. Yes.
 4 Q. And again, I'm going to ask you a very specific
 5 question, so I'm just going to set this up, if that's
 6 okay.
 7 So in April, May, 1985, Monsanto hired
 8 Dr. Kuschner, an outside pathologist, to review the
 9 kidney slides and he found an additional kidney tumor in
 10 the control group; correct?
 11 A. Correct.
 12 Q. And Monsanto submitted that report to OPP;
 13 correct?
 14 A. Let's see. I think the report -- I can't
 15 remember if it went from Bio/dynamics directly into EPA,
 16 or from Bio/dynamics to Monsanto and EPA, but it was one
 17 of those two.
 18 Q. At some point the report was submitted to EPA?
 19 A. Yes. Yes, it was.
 20 Q. In paragraph 323, you state that, "The Kuschner
 21 report delayed EPA's final determination as to
 22 glyphosate oncogenicity in the Bio/dynamic study";
 23 correct?
 24 A. I'm sorry. Where are you reading from?
 25 Q. Paragraph 323.

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1 A. 323. Okay. Yes. Okay. I'm there.
 2 Q. So as of May 1985, EPA had not yet made its
 3 final determination as to whether the Bio/dynamic study
 4 showed that glyphosate was oncogenic; correct?
 5 A. Well, the review of Dykstra and the position
 6 taken by the CARC was it was still being discussed.
 7 They had -- they had reached the decision to classify
 8 glyphosate as a possible oncogen, but they were still
 9 discussing these aspects of the study with Monsanto.
 10 Q. You state in your report that the Kuschner
 11 report delayed EPA's final determination; correct?
 12 A. Correct.
 13 Q. So as of May 1985 when that report was
 14 submitted, EPA had not yet made its final determination?
 15 A. Distinction between in the context of
 16 this -- this whole discussion, there's an OPP
 17 determination and there's an EPA determination. OPP had
 18 made its determination via the hazard evaluation
 19 division and Dykstra's review. I believe at this time
 20 the CARC memo, which had been signed by now; right? I'm
 21 pretty sure. That represented OPP's position, but there
 22 had been no action taken at the EPA level of whether EPA
 23 management accepted that OPP decision.
 24 So it's a little -- it's confusing, and I
 25 assure you for someone that's spent as much time with

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1 the record as I have, it's sometimes hard to tell what's
 2 an EPA decision or what's an OPP decision.
 3 Q. Is there any other branch within EPA that
 4 regulates pesticides other than OPP?
 5 A. No.
 6 Q. So OPP's decision is the decision of EPA; no?
 7 A. No, it's not. No, it's not. Senior-level
 8 management in EPA will sometimes overrule an action
 9 taken by OPP. In fact, they -- this was part of what
 10 happened in the case of glyphosate.
 11 Q. When EPA reregistered glyphosate in 1993, would
 12 that be an EPA action?
 13 A. Yes.
 14 Q. You would agree that that was a major
 15 regulatory action; correct?
 16 A. Yes, sir.
 17 MR. FAYNE: I'm going to mark as Exhibit 14 the
 18 1993 Registration Eligibility Decision.
 19 (Exhibit 14 marked for identification.)
 20 Q. (BY MR. FAYNE:) If you could turn to -- strike
 21 that.
 22 You've seen this document before; correct?
 23 A. Yes, sir.
 24 Q. You're familiar with it?
 25 A. Yes.

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1 Q. If you could turn to page 14, please.
 2 A. First word, "Adenomas"?
 3 Q. Correct. And if you go to the second
 4 paragraph, it's describing a carcinogenicity study in
 5 mice; correct?
 6 A. Let me just get a sense of the context here. I
 7 take it this is in the toxicology discussion section?
 8 Q. That's correct.
 9 A. Estimate usage, science assessment, product
 10 chemistry...
 11 Okay. So you --
 12 Q. That second paragraph is discussing the 1983
 13 mouse study; correct?
 14 MR. KRISTAL: Which paragraph?
 15 THE WITNESS: The second one. Starting, "A
 16 carcinogenic study"; correct?
 17 MR. FAYNE: Correct.
 18 THE WITNESS: Yes, okay. Correct.
 19 Q. (BY MR. FAYNE:) So you agree that this second
 20 paragraph is discussing the 1983 mouse study; correct?
 21 A. Correct.
 22 Q. And at the bottom of this paragraph, the
 23 document states that, "Therefore, glyphosate was not
 24 considered to be carcinogenic in this study"; correct?
 25 A. Correct.

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1 Q. So EPA's final determination was that
 2 glyphosate was not carcinogenic in this study; correct?
 3 A. That says it's stated here, and of course this
 4 occurred in 1991 with the reevaluation.
 5 Q. And we'll get to the 1991 reevaluation.
 6 A. Okay.
 7 Q. But I thought you were making a distinction
 8 between EPA and OPP. Are you saying that the 1991
 9 reevaluation was also EPA's determination, as opposed to
 10 OPP?
 11 A. No.
 12 Q. So this 1993 document, this is EPA's
 13 determination; correct?
 14 A. This is -- yeah. This is a -- this would
 15 reflect EPA's position and judgment.
 16 Q. So as of 1993, EPA did not consider glyphosate
 17 to be carcinogenic in the 1983 mouse study?
 18 A. Correct.
 19 Q. You would agree with me that EPA has confirmed
 20 that conclusion on multiple occasions since 1993;
 21 correct?
 22 MR. KRISTAL: Object to the form of the
 23 question.
 24 A. Well, there have been -- there have been a
 25 number of tolerance petitions where EPA has discussed

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1 the chronic toxicology database, and then there's been
 2 all of the documents relative to the rereview of
 3 glyphosate that started in, what, 2008 culminating in
 4 the 2016 report being the fullest expression, and at
 5 multiple times along the way, the EPA expressed its
 6 judgment based on the entire animal bioassay data set.
 7 And I really don't believe there was anything
 8 new or different said about the 1983 Bio/dynamic study
 9 from 1991 on. I mean, that was it. That was the end of
 10 the story on that study.
 11 Q. So since 1991, EPA's position on the 1983 study
 12 has been consistent; correct?
 13 A. Has been consistent, yes.
 14 Q. And consistently found that it did not show
 15 carcinogenicity; correct?
 16 A. Well, they -- that's what they determined in
 17 1991, and they never revisited that decision or changed
 18 it.
 19 Q. So your position is that during the current
 20 rereview process, culminating in what you said was the
 21 2016 EPA report, but that's been updated since in
 22 December 2017, that EPA didn't revisit that study?
 23 A. No. No. I don't think they did at all, yeah.
 24 Q. What's your basis for saying that they haven't
 25 looked back at the study?

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1 A. They had a final determination of that study,
 2 and I don't think they -- they spent a lot of time
 3 reassessing their evaluation of many of the old animal
 4 bioassays. So I think to the extent that they spent
 5 time assessing new studies, it would be the more recent
 6 ones.
 7 Q. Did EPA -- I'm sorry. Strike that.
 8 Did IARC consider the 1990 -- 1983 mouse study?
 9 A. Yes.
 10 Q. Did it reach any determination about that
 11 study?
 12 A. Yes.
 13 Q. Did it find that the tumors in the study were
 14 treatment-related?
 15 A. Yes.
 16 Q. You agree that in its most recent evaluation in
 17 December 2017, OPP has reviewed the IARC report;
 18 correct?
 19 A. Yes.
 20 Q. And that would include the IARC -- the section
 21 of that report addressing the 1983 mouse study; correct?
 22 A. Correct. Yeah.
 23 Q. And in the December 2017 OPP report, EPA again
 24 found that glyphosate is not likely to be carcinogenic;
 25 correct?

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1 A. Correct.
 2 Q. It also conducted a review of the animal data;
 3 correct?
 4 A. Well, yeah. It reviews the same studies that
 5 it reviewed, and going back to the 1993 reregistration
 6 document, yeah.
 7 Q. So in the December 2017 report, EPA had
 8 reviewed the IARC determination, had reviewed IARC's
 9 conclusions about the animal data, and still reached the
 10 determination that glyphosate is not likely
 11 carcinogenic; fair?
 12 A. OPP had reviewed, not all of the EPA, because
 13 there was a disagreement in EPA about the aspects of the
 14 evaluation.
 15 Q. OPP had reviewed the IARC determination, IARC's
 16 conclusions about the animal data, and reached the
 17 determination that glyphosate is not likely to be
 18 carcinogenic; correct?
 19 A. EPA reached that conclusion based on a
 20 weight-of-the-evidence assessment relative to the five
 21 categories in EPA's classification system.
 22 You know, there's -- certainly there are
 23 differences in the evaluation of the animal data between
 24 EPA and IARC, but certainly not as significant as the
 25 differences in assessment of the genotox database.

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1 Q. Sir, if you could turn to page 85 of Exhibit 6,
 2 which is EPA's --
 3 A. Yep. Yep.
 4 Q. -- 2016 --
 5 A. 85?
 6 Q. 85, yes.
 7 A. Okay. I'm there.
 8 Q. This is OPP's discussion of the 1983 mouse
 9 study; correct?
 10 A. Correct.
 11 Q. And this is their -- OPP's 2016 report which
 12 follows the IARC evaluation; correct?
 13 A. Follows?
 14 Q. Sorry, came after IARC's determination;
 15 correct?
 16 A. Well, I'll -- yes. Yes.
 17 Q. And if you turn to page 87, the --
 18 A. I'm there.
 19 Q. The top paragraph states, "Based on the weight
 20 of evidence for this study, the agency concurs with the
 21 PWG conclusion, following a thorough examination of all
 22 kidney sections, that the renal tubular neoplasms are
 23 not treatment-related with a lack of statistical
 24 significance in the trend and pairwise test"; correct?
 25 A. Correct.

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1 Q. So in 2016, EPA concluded, based on a
 2 weight-of-evidence evaluation of this study, that the
 3 tumors were not treatment related; correct?
 4 A. That -- that was EPA's position then and I
 5 believe it's still to this day.
 6 Q. I'd like to go to -- you can put that down now.
 7 Thanks.
 8 A. I was going to say, no more than three
 9 documents open at once.
 10 Q. Yes, I understand.
 11 A. Or we'll get hopelessly --
 12 Q. Let's turn to page 78 of your report.
 13 A. Are we done with this '93 R.E.D.?
 14 Q. Yes. You can put that away.
 15 A. Okay. Where are we going in my report?
 16 Q. So you don't even need to turn there, actually.
 17 In your report you discuss the 1986 scientific
 18 advisory panel; correct?
 19 A. Yes.
 20 Q. Which reviewed the 1983 mouse study?
 21 A. Correct.
 22 Q. What is a science advisory panel?
 23 A. It's an ad hoc group of scientists convened by
 24 EPA to provide scientific and technical guidance to the
 25 agency on issues that arise in the course of regulating

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1 pesticides.
 2 Q. And an S-A-P, or science advisory panel, is
 3 composed of scientists who are independent of EPA;
 4 correct?
 5 A. Correct.
 6 Q. They're selected by EPA's Office of Science
 7 Policy?
 8 A. Yes.
 9 Q. The 1986 SAP memorialized its findings and
 10 recommendations in a February 24th, 1986, memo; correct?
 11 A. Correct.
 12 (Exhibit 15 marked for identification.)
 13 Q. (BY MR. FAYNE:) Marking as Exhibit 15 the
 14 SAP's 1986 memo. You've seen this document before?
 15 A. Yes, but I need to read it.
 16 Q. And I just have a very quick question for you
 17 about what the panel concluded.
 18 A. Okay. Just let me finish reading it, please.
 19 Okay.
 20 Q. In this 1986 SAP memo, the SAP recommended that
 21 glyphosate be categorized -- categorized as Group D, not
 22 classifiable; correct?
 23 A. Correct.
 24 Q. So the SAP did not believe there was sufficient
 25 evidence to classify glyphosate as a possible oncogen;

Page 212

1 correct?
 2 A. Correct.
 3 Q. The SAP also recommended that there be a data
 4 call-in for further studies in rats and/or mice --
 5 A. Correct.
 6 Q. -- to clarify unresolved questions; correct?
 7 A. Yes.
 8 Q. And you testified previously that Monsanto did
 9 conduct a new study in rats; correct?
 10 A. There was a new study ongoing at the time of
 11 this meeting.
 12 Q. But since 1986, Monsanto did -- strike that.
 13 After the 1986 SAP, Monsanto did complete a new
 14 study in rats; correct?
 15 A. They completed it and submitted it to the
 16 agency, yes.
 17 Q. And that's the Stout and Rucker study?
 18 A. I don't recall the author's name.
 19 (Exhibit 16 marked for identification.)
 20 Q. (BY MR. FAYNE:) We've marked as Exhibit 16 an
 21 EPA memorandum dated October 30th, 1991, subject "Second
 22 peer review of glyphosate."
 23 You've seen this document before; correct?
 24 A. Yes, sir.
 25 Q. This document is titled "Second peer review."

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1 The first was the March 1985 memo you mentioned
 2 previously; correct?
 3 A. Correct.
 4 Q. If you turn to page -- the second page of the
 5 document, it states individuals in attendance; correct?
 6 A. Yes.
 7 Q. And there are a number of individuals listed
 8 here. I haven't counted them up, but it looks like more
 9 than ten individuals on the committee; correct?
 10 A. Yes.
 11 Q. And at the top it states that signature
 12 indicates concurrence with the peer-review
 13 committee -- I'm sorry, strike that.
 14 It states, "Signature indicates concurrence
 15 with the peer review unless otherwise stated"; correct?
 16 A. Yes.
 17 Q. So on this document and others like it, the
 18 signature indicates concurrence; correct?
 19 A. Correct.
 20 Q. Unless something else is indicated on the
 21 signature line; correct?
 22 A. Correct.
 23 Q. And as you can see from this report, the
 24 majority of members of the committee concurred in the
 25 peer review; correct?

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1 A. Correct.

2 Q. Can you turn to page 5. There's a study, Stout
3 and Rucker study dated 1990, "Chronic study of
4 glyphosate administered in feed to albino rats";
5 correct?

6 A. Correct.

7 Q. And that's the -- that's the 1990 study that
8 Monsanto completed; correct?

9 A. Correct. That probably was underway in 1986.

10 Q. So this shows that EPA reviewed the 1990 rat
11 study; correct?

12 A. Right. I assume this is a summary of the
13 review.

14 Q. And if you turn to page 13 --

15 A. I'm there.

16 Q. Number 3, that's the 1983 mouse study; correct?

17 A. I'm sorry, page?

18 Q. Sorry. On page 13, where it says --

19 A. Okay. Yep.

20 Q. -- "Hogan, GK" --

21 A. Yes.

22 Q. "1983."

23 A. Yes. Yes.

24 Q. So EPA also reviewed the 1983 mouse study in
25 this 1991 peer review; correct?

Page 215

1 A. It was included, yes.

2 Q. And they state on page 14, if you turn to
3 page 14, the third paragraph states, "Committee's
4 interpretation. In their meeting of June 26, 1991, the
5 health effects carcinogenicity peer-review committee
6 concluded that despite the fact that the incidence of
7 renal tubular neoplasm in the high-dose males exceeded
8 that of historical controls, the biological significance
9 of the findings was questionable."
10 Did I read that correctly?

11 A. Yes.

12 Q. And then the peer-review committee cites a
13 number of reasons why they thought the review was
14 questionable -- the findings were questionable; is that
15 fair?

16 A. That's correct.

17 Q. Finally, if you turn to page 19 --

18 A. I'm there.

19 Q. -- it states the peer-review committee's
20 classification that glyphosate should be classified as a
21 Group E (evidence of non-carcinogenicity for humans),
22 based on lack of convincing carcinogenicity evidence and
23 adequate studies in two animal species; correct?

24 A. Correct.

25 Q. So in 1991, EPA reviewed the 1990 rat study,

Page 216

1 reviewed the 1993 mouse study, and concluded that
2 glyphosate should be classified as non-carcinogenic to
3 humans; correct?

4 A. That's correct.

5 Q. Your report details at length the events from
6 1983 related to this 1983 mouse study up through the end
7 of the 1980s; correct?

8 A. Correct.

9 Q. You don't mention that Monsanto performed a
10 study in rats, do you?

11 A. No.

12 Q. Why not?

13 A. There was no -- no disagreement or controversy
14 over the interpretation of that study. The EPA
15 scientists reviewed and reached the same conclusions as
16 the Monsanto scientists in the contract lab.

17 Q. In forming your opinions in this case, did you
18 consider the fact that Monsanto performed the rat study
19 as requested by the SAP?

20 A. I believe the rat study was started before the
21 SAP meeting.

22 Q. But the SAP stated that there should be a new
23 study --

24 A. Right.

25 Q. -- in mice and/or rats; correct?

Page 217

1 A. Yeah.

2 Q. And Monsanto performed the study in rats;
3 correct?

4 A. Yeah. It was ongoing and they completed it,
5 yeah.

6 Q. Did you consider that fact in forming your
7 opinions in this case?

8 A. Yes.

9 Q. But you didn't consider it important enough to
10 include in your expert report; is that correct?

11 MR. KRISTAL: Objection.

12 A. No, I didn't.

13 Q. Your report also does not mention the 1991 peer
14 review; correct?

15 A. I'd have to go back and look if it did, but
16 it's certainly a part of the record that I've testified
17 to at length in the earlier depositions.

18 Q. You would agree with me that the 1991 peer
19 review is an important piece of the regulatory history;
20 correct?

21 A. Yes.

22 Q. Okay. So I want to now move to a discussion of
23 the request for a repeat mouse study, which we've talked
24 about a little already; correct?

25 So you state in your report that in 1986, EPA

Page 218

1 issued the registration standard document; correct?
 2 A. Yes.
 3 Q. And in that document, EPA concluded that the
 4 available data were not sufficient to adequately assess
 5 whether glyphosate was carcinogenic; correct?
 6 A. Correct.
 7 Q. And EPA requested a repeat of the mouse study
 8 with a larger number of animals in each test group;
 9 correct?
 10 A. And a rat study.
 11 Q. And a -- but -- sure. But I'm speaking
 12 specifically about the mouse study. Correct?
 13 A. Okay. All right.
 14 Q. And you testified that they did do the rat
 15 study; correct?
 16 A. Right. Right.
 17 Q. Monsanto formally requested a waiver, as I
 18 understand it from your report; correct?
 19 A. Uh-huh.
 20 Q. If you could say "yes" or "no."
 21 A. Yes.
 22 Q. And it's not uncommon for a registrant to
 23 submit a waiver request; correct?
 24 A. No. It happens.
 25 Q. And in some cases, the agency agrees; in some

Page 219

1 cases it might not agree. Correct?
 2 A. That's also correct.
 3 Q. In paragraph -- actually, strike that.
 4 You also describe a memo that was prepared by
 5 Dr. William Dykstra; correct? And this is the -- sorry.
 6 Strike that again.
 7 You also describe a memo from Dr. William
 8 Dykstra in which he states that, "The toxicology branch
 9 does not concur with Monsanto regarding the waiver of
 10 the repeat mouse study"; correct?
 11 A. Correct.
 12 Q. That memo was prepared in 1990 -- 1988;
 13 correct?
 14 A. I believe that's correct. Can you just direct
 15 me to the paragraph?
 16 Q. Sure. It's paragraph 380.
 17 A. 380, okay.
 18 Q. And actually, if you go to 384, you note that
 19 Dr. Dykstra set forth several specific study
 20 requirements, including that there should be 200 male
 21 mice per group; correct?
 22 A. That was one of them, yes.
 23 Q. So that would be 400 male mice total; correct?
 24 A. No. No. There were several groups. There was
 25 a control group and five treatment groups as opposed to

Page 220

1 only three, so it would be 1,200 male mice.
 2 Q. So the study that Dr. Dykstra was requesting
 3 would be 1,200 male mice?
 4 A. Correct.
 5 Q. How many mice are typically included in a
 6 long-term cancer study?
 7 A. Well, in the original 1983 Bio/dynamic study,
 8 there was 50 mice in each of the control and three
 9 treatment groups, so 200 male mice, 200 female mice, so
 10 a total of 400.
 11 Q. So this would be three times as large as the
 12 typical study?
 13 A. Yes.
 14 Q. Are you aware of any pesticide company that has
 15 performed a long-term cancer study using that many mice?
 16 A. No, not off the top of my head. It would be a
 17 very -- it would be a very unusual study, a very
 18 powerful study that, if there were indeed a problem with
 19 renal tube adenomas, that study would have resolved it.
 20 Q. And you've referred to this as a special
 21 study --
 22 A. Yeah.
 23 Q. -- because it's unusual; correct?
 24 A. Right.
 25 Q. And you discuss this memo from Dr. Dykstra in

Page 221

1 1988 because it's, in your view, an important piece of
 2 the regulatory history; fair?
 3 A. Correct.
 4 Q. So if I understand your report correctly, EPA
 5 requested that Monsanto perform this more powerful mouse
 6 study in the 1986 registration standard document, and
 7 then --
 8 A. No. No, they didn't -- the request for that
 9 more powerful study, I don't believe it was in the
 10 registration standard document. It occurred -- it, you
 11 know, two years later in the back-and-forth, after the
 12 resectioning of the kidney slides and after the
 13 controversy over the magic tumor in control mouse 102A.
 14 Q. So in the registration standard document, EPA
 15 requested a repeat mouse study; correct?
 16 A. A repeat mouse study.
 17 Q. Correct. So EPA requested the repeat mouse
 18 study, and then denied Monsanto's request for a waiver
 19 in 1988; correct?
 20 A. Correct. Well, I don't know the date that they
 21 denied the waiver, but in between the issuance of the
 22 registration standard and Dykstra's request for this
 23 special study, there had been the resectioning of the
 24 slides and the controversy over whether there was an
 25 additional renal tubular adenoma in one of the control

Page 222

1 mice.

2 And OPP and Dykstra felt that the way to

3 resolve this very sharp difference of opinion with the

4 three EPA pathologists that read all the slides saying

5 there's no renal tubular adenoma in control mouse 102A,

6 and all of the Monsanto-hired pathologists saying that

7 there was -- one of the two had to be wrong.

8 And I think it's fair to say that there was

9 never agreement between OPP and Monsanto about whether

10 there was in fact a renal tubular adenoma in control

11 mouse 102A, so EPA designed this very powerful study

12 that had Monsanto done the study and had it produced no

13 evidence of kidney tumors, the debate over the 1983

14 study would have ended at that point.

15 MR. FAYNE: I'm going to move to strike that

16 answer as non-responsive.

17 MR. KRISTAL: I think it was completely

18 responsive, and I'd also remind counsel we're beating

19 dead mice at this point, too.

20 Dr. Benbrook has been asked ad nauseam about

21 this study, and you're really repeating a lot of the

22 same -- it's the same report and you're repeating a lot

23 of the same questions.

24 MR. FAYNE: This is a new report, and I'm

25 walking through it paragraph by paragraph.

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1 MR. KRISTAL: No. No. I understand it's a new

2 report. The same information was contained in the old

3 report. The same information has been asked --

4 THE WITNESS: Counsel, you didn't do any of the

5 last deposition. I was there, and I will tell you this

6 is very similar to what we went through.

7 MR. FAYNE: I understand.

8 MR. KRISTAL: All I'm saying is I gave you some

9 leeway. I just ask you not to repeat questions on the

10 exact same subjects asking and showing the same

11 documents.

12 MR. FAYNE: I'm trying to understand his

13 opinions that are set forth in this new report.

14 MR. KRISTAL: And I would suggest you look at

15 any one of the five.

16 MR. FAYNE: I've reviewed all five.

17 MR. KRISTAL: And including all five of them --

18 MR. FAYNE: I appreciate it.

19 MR. KRISTAL: -- and you'd understand exactly

20 what you're asking because it's already been asked.

21 MR. FAYNE: Okay. Thank you. I appreciate

22 that.

23 Q. (BY MR. FAYNE:) If you could turn to

24 paragraph 368 of your report.

25 A. We're going -- we're going back now? 368?

Page 224

1 Q. 368.

2 A. Okay. I'm there.

3 Q. You state that, "The 1986 glyphosate RS

4 document states on page 2: 'Failure to comply with

5 these requirements [example, filling data gaps, adding

6 new worker safety rules] may result in the issuance of a

7 Notice of Intent to Cancel or a Notice of Intent to

8 Suspend in the case of failure to submit data."

9 Did I read that correctly?

10 A. Yes, you did.

11 Q. You just testified that Monsanto never

12 conducted the repeat mouse study that EPA requested in

13 the 1986 registration center document; correct?

14 A. Yes.

15 Q. But EPA never issued a notice of intent to

16 cancel the glyphosate registration because of Monsanto's

17 failure to do so; correct?

18 A. That is correct.

19 Q. EPA never issued a notice of intent to suspend;

20 correct?

21 A. Correct.

22 Q. And one more question. If I could turn you

23 back to the 1991 peer review. And I apologize, I

24 don't -- which exhibit is that?

25 A. Exhibit 16.

Page 225

1 Q. Exhibit 16. You testified previously that your

2 understanding is that EPA did not request the additional

3 kidney sections; correct?

4 A. There were -- there were two rounds of

5 reassessment of the kidney slides.

6 Q. But I believe your testimony previously was

7 that EPA did not request that resectioning.

8 A. Correct.

9 Q. If you turn to page 13 of this document.

10 A. I'm there.

11 Q. The last paragraph, the first sentence, states,

12 "The agency then requested that additional kidney

13 sections from the mouse study be prepared and examined."

14 Do you see that?

15 A. Yes.

16 Q. Would you agree with me, then, that your prior

17 testimony was --

18 A. No.

19 Q. -- incorrect?

20 A. So there were two rounds of this, as I said.

21 The first rereading of the kidney slides was actually

22 rereading the original slides. The second round of

23 reassessment entailed actually resectioning the slides,

24 and that -- that is what is addressed in this passage.

25 Q. So you would agree the EPA requested the

Page 226

1 resectioning of the slides; correct?

2 A. The resectioning of the slides was proposed

3 originally by Monsanto in their ongoing back-and-forth,

4 and ultimately EPA decided to request the resectioning

5 of slides because that -- you know, they had to unthaw

6 the kidneys and slice them again, so it required a

7 request to do that.

8 MR. FAYNE: 17.

9 (Exhibit 17 marked for identification.)

10 Q. (BY MR. FAYNE:) I've marked as Exhibit 17 a

11 June 1989 memo from EPA prepared by William Dykstra,

12 subject, "Glyphosate EPA Registration Numbers 524-318

13 and 524-333 - Historical Control Data For Mouse Kidney

14 Tumors."

15 Do you see that?

16 A. Yes.

17 Q. Have you seen this document before?

18 A. Yes.

19 Q. This is a memo from Dr. Dykstra dated

20 June 1989, which is approximately one year after the

21 Dykstra memo we discussed previously; correct?

22 A. Correct.

23 Q. And if you turn to page 2 of the document, the

24 last paragraph before the section that says

25 "Background."

Page 227

1 A. Okay.

2 Q. It states that TB -- and "TB" stands for the

3 toxicology branch; correct?

4 A. Correct.

5 Q. "The toxicology branch concludes that a repeat

6 of the mouse oncogenicity study is not required at this

7 time. After the results of the new two-year rat chronic

8 toxicity and oncogenicity study are reviewed, toxicology

9 branch will reconsider whether the repeat of the mouse

10 oncogenicity study is required."

11 Did I read that correctly?

12 A. Yes, you did.

13 Q. So in 1989, the EPA toxicology branch agreed

14 that Monsanto did not have to conduct the repeat mouse

15 study; correct?

16 A. At this time.

17 Q. At this time; correct?

18 A. Correct.

19 Q. EPA further explained that after the results of

20 the rat study were reviewed, it would consider whether

21 to request that repeat mouse study; correct?

22 A. Yes, sir.

23 Q. And as we discussed previously, Monsanto did

24 complete that new rat study, and EPA reviewed it in

25 1991; correct?

Page 228

1 A. Yes, sir.

2 Q. Do you know whether EPA ever requested that

3 Monsanto repeat the mouse study after 1991?

4 A. I don't believe they did.

5 Q. So you stated earlier that at this time, but to

6 your knowledge EPA has not requested that repeat study

7 since 1989; correct?

8 A. Correct.

9 Q. You state in your report that Monsanto's

10 refusal to conduct that new repeat mouse study altered

11 the regulatory history; correct?

12 A. Yes.

13 Q. You're aware that since the early '90s, there

14 have been four new studies in mice; correct?

15 A. Yes.

16 Q. Do you know whether any of those studies found

17 compound related kidney tumors like those reported in

18 the 1983 study?

19 A. I'd have to refresh my memory, but there's a

20 number of tumors identified in the mice and rat studies

21 that -- where there's difference of opinion between

22 different entities. IARC read them differently in some

23 respects than EPA. There were, I think, maybe 14

24 different tumors that are where the results are subject

25 to controversy, depending upon who's reviewing the

Page 229

1 study.

2 Q. But you're not aware of any of those studies

3 that found compound related kidney tumors; correct?

4 A. I'm not aware of any that found renal tubular

5 adenomas of the same sort that were in the CD-1 mice in

6 1983, but I do believe the kidney -- the kidney was a

7 target of other adenomas and carcinomas in some of the

8 other studies, and in particular the -- it was the -- a

9 Syngenta study.

10 Q. You mentioned that there have been many studies

11 in mice and rats since the early '90s; correct?

12 A. Well, I think the total count is 14.

13 Q. Correct. There have been 14 --

14 A. Yeah.

15 Q. -- long-term studies in rodents; correct?

16 A. Yeah. I think that's the number most people

17 agree to.

18 Q. EPA has reviewed all 14 of those studies as

19 recently as December 2017?

20 A. Well, they're discussed in the December 2017

21 report. They're discussed in the September 2016 report

22 and all the earlier reports, yeah.

23 Q. And again, since 1991, EPA has consistently

24 classified glyphosate as not likely to be carcinogenic;

25 correct?

Page 230

1 MR. KRISTAL: Asked and answered.
 2 A. Yeah, it's glyphosate technical based on
 3 expected levels of exposure to the general public.
 4 MR. FAYNE: Is now a good time for a break?
 5 THE WITNESS: I'm ready for a bio.
 6 VIDEOGRAPHER: Off the record at 2:57 p.m.
 7 (A brief recess was had.)
 8 (Exhibit 18 marked for identification.)
 9 VIDEOGRAPHER: Back on the record at 3:19 p.m.
 10 Q. (BY MR. FAYNE:) Dr. Benbrook, I'm marking as
 11 Exhibit 18 the October 1st, 2015, EPA report of the
 12 Cancer Assessment Review Committee.
 13 A. Okay.
 14 Q. You've seen this document before; correct?
 15 A. Yes.
 16 Q. The Cancer Assessment Review Committee, or
 17 CARC, is a team of interdisciplinary EPA scientists with
 18 specific expertise in cancer classification; agree?
 19 A. That's correct.
 20 Q. The CARC must review all food-use pesticides
 21 for their carcinogenic potential; correct?
 22 A. I'm not sure that all pesticides come before
 23 CARC, but they -- certainly all of the ones where there
 24 are technical issues that need to be resolved.
 25 Q. And the CARC recommends a cancer classification

Page 231

1 that ultimately OPP decides whether or not to adopt;
 2 correct?
 3 A. That's correct.
 4 Q. If you turn to page 10.
 5 A. I'm there.
 6 Q. The middle paragraph before the bullet states,
 7 "In accordance with the 2005 Guidelines For Carcinogenic
 8 Risk Assessment, based on the weight-of-evidence,
 9 glyphosate is classified as 'Not Likely to Be
 10 Carcinogenic to Humans."
 11 Did I read that correctly?
 12 A. Yes, you did.
 13 Q. So in 2015, as we discussed, the Cancer
 14 Assessment Review Committee classified glyphosate as
 15 non-carcinogenic; correct?
 16 A. Yes.
 17 Q. If you turn to page 6, it lists the committee
 18 members in attendance.
 19 A. I remember seeing the list. Yes, I see it.
 20 Q. And it shows that there were 13 members of the
 21 committee; correct?
 22 A. Yes.
 23 Q. And --
 24 A. I didn't count them, but I'll take your word
 25 for it.

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1 Q. I'll represent to you that it's 13.
 2 A. Okay.
 3 Q. And each of the members signed; correct?
 4 A. Yes.
 5 Q. None of them indicated they did not concur in
 6 the decision; correct?
 7 A. That's correct.
 8 Q. So that means all 13 members of the committee
 9 concurred with the classification of glyphosate as not
 10 likely to be carcinogenic to humans?
 11 A. Yes.
 12 Q. And I'll note that you testified in August that
 13 you thought that maybe not all 13 had concurred, but you
 14 now agree that you were not remembering correctly in
 15 August; correct?
 16 A. Perhaps we were addressing the 1991. You know,
 17 I don't -- I don't know what part of the deposition
 18 you're referring to.
 19 Q. Sure.
 20 A. But I could have gotten one wrong.
 21 Q. But we agree today that --
 22 A. Today.
 23 Q. -- all 13 concur?
 24 A. We are on the same page, sir.
 25 Q. Great. So turning to -- now I'm in your

Page 233

1 IA -- you can put that aside.
 2 A. Back to the report?
 3 Q. Back to the report. Paragraph 387. It's on
 4 page 86.
 5 A. I'm there. 387?
 6 Q. You know what? I'm sorry. Could we actually
 7 pull out the CARC report again? I'm sorry.
 8 A. This last one?
 9 Q. Yes.
 10 A. Okay.
 11 Q. So you've testified in your report about
 12 Jess Rowland; correct?
 13 A. Correct.
 14 Q. And you suggested or you assert in your report
 15 that Jess Rowland's involvement with the CARC calls into
 16 question its objectivity. Is that a fair
 17 characterization?
 18 A. Not exactly. The record shows some unusually
 19 close and inappropriate communications between
 20 Jess Rowland and Monsanto on the general topic of OPP's
 21 evaluation of glyphosate oncogenicity.
 22 Q. You state in paragraph 463 -- if you want to
 23 turn there in your report.
 24 A. 463?
 25 Q. Yep.

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1 A. 460. Going the wrong direction. Okay. I'm
 2 there.
 3 Q. The second sentence of that paragraph you
 4 state, "Considering Dr. Rowland" -- I think that should
 5 probably be "Dr. Rowland's relationship with Monsanto,
 6 it raises, in my opinion, serious questions about the
 7 objectivity of that report and the scientific basis of
 8 EPA's determination that glyphosate is not likely to
 9 pose cancer risk."
 10 Do you see that?
 11 A. Correct.
 12 Q. And you're referring to the CARC assessment?
 13 A. Correct.
 14 Q. Do you have any reason to believe that the 12
 15 other members of this committee were biased in any way?
 16 A. I found very curious and suggestive an e-mail
 17 that Jess Rowland sent to one of the Monsanto people
 18 where the topic of discussion was Monsanto had contacted
 19 Rowland to see if Rowland and EPA needed any support
 20 from Monsanto in sticking to its position that
 21 glyphosate poses no oncogenic risk after the release of
 22 the IARC classification as a probable human carcinogen.
 23 And in the response from Rowland to -- I
 24 believe it was Serdy. I can't remember. We can no
 25 doubt find the MONGLY document, if you want. Rowland

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1 says that he's in good shape on epi and exposure, there
 2 is an issue about a carcinoma in I believe it was the
 3 Syngenta oncogenic feeding study, and he says -- he says
 4 that he identifies the CARC as "my people."
 5 And that tipped me off to the -- to perhaps an
 6 undue influence by Rowland on the members of CARC in
 7 that he felt that they were his people and hence would
 8 follow his lead.
 9 Q. So you reviewed the e-mails between
 10 Jess Rowland and Monsanto and those e-mails led you to
 11 question the objectivity of the CARC; is that fair?
 12 A. It suggested to me that there was a
 13 Jess Rowland-led effort to try to assure that EPA's
 14 statements and reports on the matter of glyphosate
 15 oncogenicity stuck to the decision that really went back
 16 to 1991, that glyphosate poses no oncogenic risk to
 17 humans.
 18 Q. You're not aware of any communications from any
 19 of the other non-Rowland members of the CARC and
 20 Monsanto; correct?
 21 A. Let me -- no, I'm not.
 22 Q. Each member of the CARC has equal voting
 23 rights; correct?
 24 A. I believe that's the case.
 25 Q. And in this case, the vote on glyphosate in

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1 2015 was unanimous, as we discussed; correct?
 2 A. Correct.
 3 Q. Now let's go to paragraph 387 of your report.
 4 A. 387?
 5 Q. Yes. And just to orient you, this is --
 6 A. Okay. I'm there.
 7 Q. And to orient you, this is the last paragraph
 8 of your discussion of the 1983 mouse study.
 9 A. Oh, okay. Thank you.
 10 Q. You state, "In my opinion Monsanto should have
 11 conducted a special study requested by EPA in response
 12 to the agency's request, and in light of the company's
 13 commitment to product safety. I also conclude that, and
 14 in the interim, Monsanto should have added an
 15 oncogenicity warning to Roundup labels as well as in
 16 glyphosate-based herbicide chemical safety data sheets
 17 and other information developed for physicians and
 18 poison control centers."
 19 I omitted a parenthetical, but otherwise did I
 20 read that correctly?
 21 A. Yes, you did.
 22 Q. So you state that Monsanto should have added an
 23 oncogenicity warning in the interim; correct?
 24 A. Correct.
 25 Q. And by "in the interim," do you mean the period

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1 of time between the 1986 registration standard document
 2 and Monsanto's completion of the repeat mouse study?
 3 A. Well, I think that a prudent company would have
 4 moved to add such a warning following the initial CARC
 5 classification that occurred I believe in 1985, and that
 6 that's when it should have -- it should have been
 7 initiated. It takes time to add that sort of language
 8 to all the labels.
 9 It wouldn't have happened until probably 1987,
 10 at the earliest, given the cycle of label, but that's
 11 when it should have begun.
 12 Q. And the reason you contend they should have
 13 done that is because at that time, EPA in 1985 had
 14 determined that it was a possible carcinogen; correct?
 15 A. Correct.
 16 Q. And then in 1986, EPA had determined that it
 17 was a class Category D carcinogen, not classifiable;
 18 correct?
 19 A. Now, 1991.
 20 Q. The 1986 registration standard document adopts
 21 the Category D classification; correct?
 22 A. I don't believe so.
 23 Q. Regardless, your position as of -- let's start
 24 with 1985. The reason you contend Monsanto should have
 25 added the warning is because of EPA's classification of

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1 glyphosate as a possible carcinogen; correct?
 2 A. As codified in the 1985 CARC meeting.
 3 Q. So by that logic, would you agree that today
 4 Monsanto has no obligation to put a cancer warning on
 5 its products based on EPA's classification of glyphosate
 6 as Category E, non-carcinogenic?
 7 MR. KRISTAL: Objection. Because Dr. Benbrook
 8 is not being offered on causation, and, therefore,
 9 there's additional information in the present time other
 10 than EPA's classification.
 11 MR. FAYNE: You can answer.
 12 THE WITNESS: Would you please repeat the
 13 question?
 14 Q. (BY MR. FAYNE:) Sure. By that logic, would
 15 you agree that Monsanto has no obligation today to place
 16 a cancer warning on its glyphosate-based herbicides in
 17 light of EPA's classification of glyphosate as not
 18 likely to be carcinogenic?
 19 A. No, I don't agree. There's much more
 20 information and there is a classification by the
 21 International Agency For Research on Cancer that
 22 glyphosate and glyphosate-based herbicides are probable
 23 human carcinogens, which I think raises substantially
 24 the justification for a clear cancer warning on labels
 25 and material safety data sheets, et cetera.

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1 Q. Would you agree that prior to the IARC
 2 determination in March 2015, that Monsanto had no
 3 obligation to put a cancer warning on its products based
 4 on the then existing EPA classification of glyphosate as
 5 Category E, non-carcinogenic?
 6 MR. KRISTAL: Same objection. And he's already
 7 been questioned about this.
 8 THE WITNESS: May I answer?
 9 MR. KRISTAL: Sure.
 10 THE WITNESS: I don't believe that Monsanto had
 11 a legal obligation under FIFRA.
 12 I do believe that they had a moral and ethical
 13 obligation as a company with a professed commitment to
 14 product stewardship and safety of its users.
 15 Given -- given the equivocal oncogenic response data in
 16 a number of the animal bioassays, in addition to the
 17 positive epidemiological studies that Monsanto was aware
 18 of at the time, a responsible company would have alerted
 19 its users that there is some chance, some evidence that
 20 there may be an oncogenic risk, and I think it was
 21 incumbent on the company, by virtue of its stated
 22 commitment to product stewardship and its pledge to
 23 promote the safe use of its products, to provide users
 24 with that information.
 25 Q. (BY MR. FAYNE:) So your opinion is that

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1 Monsanto did not have a legal obligation to add a cancer
 2 warning to its label, but it had a moral one; is that
 3 fair?
 4 MR. KRISTAL: Objection. Obviously calls for a
 5 legal conclusion.
 6 A. I didn't say "legal obligation." I said an
 7 obligation under FIFRA under the requirements that the
 8 EPA imposes. In fact, I do believe that Monsanto at
 9 some point had a legal obligation under OSHA regs
 10 to -- to accurately include the IARC classification on
 11 OSHA chemical safety data sheets or whatever they call
 12 them.
 13 Q. Let me -- let me be more clear, then. You do
 14 not believe that Monsanto has a legal obligation under
 15 FIFRA to put a cancer warning on its product labels;
 16 correct?
 17 MR. KRISTAL: Objection. Calls for a legal
 18 conclusion.
 19 A. I would agree that there -- that there was no
 20 OPP requirement or statement of an obligation during
 21 this post-1991 period to add a cancer warning on the
 22 labels.
 23 Q. You would agree that the 1986 registration
 24 standard document did not impose on registrants of
 25 glyphosate-based herbicides a requirement to place a

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1 cancer warning on the product labels; correct?
 2 A. Correct.
 3 MR. KRISTAL: Objection. Calls for a legal
 4 conclusion.
 5 Q. That document also did not impose on
 6 registrants a requirement to place an oncogenicity
 7 warning on the product labels; correct?
 8 MR. KRISTAL: Objection. Same objection.
 9 A. Correct.
 10 Q. EPA has never required such warnings on
 11 glyphosate-based products; correct?
 12 A. Correct.
 13 Q. So your position that Monsanto should have
 14 added an oncogenicity warning on Roundup labels is not
 15 based on EPA regulations; correct?
 16 A. Correct.
 17 MR. KRISTAL: Objection.
 18 Q. It's based on your personal opinion about what
 19 a moral or ethical pesticide company would do?
 20 MR. KRISTAL: Same objection.
 21 A. It's based on what Monsanto has communicated to
 22 its user community, the medical community, regulators
 23 through various avenues in the course of describing
 24 their commitment to product stewardship.
 25 Q. So based on what Monsanto has communicated,

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1 it's your personal opinion that they have a moral or
 2 ethical obligation to put a cancer warning on their
 3 products; correct?
 4 A. Correct.
 5 MR. KRISTAL: Object to the form of the
 6 question.
 7 Q. You've reviewed several labels on
 8 glyphosate-based products; correct?
 9 A. Yes.
 10 Q. And those labels apply to the formulated
 11 product; correct?
 12 A. Correct.
 13 Q. As we've been talking about today, you're aware
 14 that since 1991 there have been numerous approvals of
 15 glyphosate-based formulations; correct?
 16 A. Yes.
 17 Q. Every time that Monsanto changes a
 18 glyphosate-based formulation, it has to submit an
 19 application to EPA to get approval of that new
 20 formulation; correct?
 21 A. A label amendment, yes. Correct.
 22 Q. That application for a new formulation would,
 23 of course, include any EPA-required studies on the new
 24 glyphosate-based formulation; correct?
 25 A. If EPA felt that such a study was necessary.

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1 Q. You agree that each new formulation requires,
 2 at a minimum, the acute tox six-pack of studies of the
 3 product; correct?
 4 A. Depends on how significant the changes are.
 5 There's certainly a number of changes in formulations
 6 where EPA would waive the requirement for a new
 7 six-pack.
 8 In particular, when there's some of the
 9 antifoaming agents and some of the adjuvants that have
 10 been altered as opposed to the surfactants where there
 11 was greater concern about some impact on the
 12 differential toxicity of the formulated product compared
 13 to the technical material.
 14 Q. And certainly to the extent EPA required it or
 15 asked for it, those applications for approval of new
 16 glyphosate-based formulations would have to include
 17 toxicology studies supporting the new approval; correct?
 18 A. Well, most of them didn't, and for most of them
 19 there was not a requirement for a new set of toxicology
 20 studies. There -- now, if there was a wholly-new
 21 formulation -- and by "wholly new," obviously the
 22 glyphosate technical would be the same.
 23 Now, it might be a potassium salt versus an
 24 isopropanol salt, but EPA would only require, for
 25 example, the six-pack studies if there was a substantial

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1 change in the surfactant, either the mix of surfactants
 2 or the concentration of surfactants in the formulated
 3 product.
 4 Q. You've reviewed the 2016 EPA OPP report in
 5 detail; correct?
 6 A. Yes, sir.
 7 Q. So you're aware that in that report, EPA
 8 discusses the IARC findings; correct?
 9 A. Yes.
 10 Q. EPA is certainly aware that IARC found
 11 glyphosate-based herbicides are probable carcinogens;
 12 correct?
 13 A. Correct.
 14 Q. That's true of the 2015 CARC report, as well;
 15 they also discuss the IARC determination. Correct?
 16 A. I guess it had come out a couple of months
 17 before.
 18 Q. If you could pull up the 2016 OPP report. It's
 19 Exhibit 6.
 20 A. Yep. Got it.
 21 Q. If you turn to page 13.
 22 A. I'm there.
 23 Q. The third paragraph of that section states
 24 that, "Recently, several international agencies have
 25 evaluated the carcinogenic potential of glyphosate," and

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1 then they go on to discuss a number of bodies that have
 2 reviewed glyphosate; correct?
 3 A. Yes, sir.
 4 Q. And that includes the IARC review; correct?
 5 A. Correct.
 6 Q. If you then go to the next paragraph, it states
 7 that, "The recent peer review performed by CARC served
 8 as an initial analysis to update the data evaluation for
 9 glyphosate at that time."
 10 Do you see that?
 11 A. Yes.
 12 Q. So you would agree that CARC was the initial
 13 analysis performed by OPP on glyphosate as part of its
 14 registration review; correct?
 15 A. Yeah, going back to 1985, actually.
 16 Q. And then if you look at the last sentence of
 17 that paragraph, it states, "As such, the current
 18 evaluation also provides a more thorough evaluation from
 19 the 2015 CARC review."
 20 Do you see that?
 21 A. Yes.
 22 Q. Would you agree that the 2016 OPP report is a
 23 more thorough evaluation than the 2015 CARC assessment?
 24 A. In certain aspects, yes.
 25 Q. You can put that document down for the time

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1 being. Thank you.

2 In other words, EPA doesn't have its head in

3 the sand; correct? It's aware of what's going on

4 throughout the world with glyphosate?

5 MR. KRISTAL: Objection to the form of the

6 question.

7 A. If what you're asking is was the EPA aware of

8 the conclusion reached by the IARC Working Group,

9 absolutely, yes, they were very aware of that.

10 Q. And in its 2016 review, EPA considered the

11 conclusion of the IARC Working Group; correct?

12 A. Yeah, both OPP and ORD, and other parts of EPA,

13 no doubt, paid attention to that.

14 Q. And in its 2016 review, OPP also considered the

15 reviews by other regulators around the world; correct?

16 A. I don't think they placed much weight on

17 Canada's review and EFSA's review. They were aware of

18 it. I think without a doubt, the evaluation of the US

19 EPA on the matter of glyphosate oncogenicity was the

20 most thorough and generally led the pack or was deferred

21 to by most other regulatory agencies.

22 So I would say the only -- the only other

23 assessment that would probably correctly be identified

24 as comparably in depth would be the ones conducted by

25 the Germans as part of the European reregistration of

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1 glyphosate, the BfR review.

2 Q. And the BfR review which informed the EFSA

3 determination; correct?

4 A. Correct.

5 Q. And by "EFSA," that's the European Food Safety

6 Agency?

7 A. Agency, yeah.

8 Q. You've reviewed -- we've discussed already that

9 you've reviewed several glyphosate formulation labels;

10 correct?

11 A. Yes.

12 Q. Have you reviewed recent labels?

13 A. Yes.

14 Q. Labels that have been issued since the 2015

15 IARC determination?

16 A. Some of them, yes.

17 Q. You've already testified that each label for a

18 new glyphosate-based formulation must be approved by

19 EPA; correct?

20 A. Yes.

21 Q. Before EPA can approve a label, it must make a

22 determination that the glyphosate-based formulations

23 label is consistent with FIFRA and the regulations

24 implementing FIFRA; correct?

25 A. Well, that would be the -- the framework in

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1 which they make a judgment of whether they're going to

2 challenge anything about a particular label or not.

3 Q. So under FIFRA, EPA is required to make the

4 determination that the label is consistent with the

5 statute and with EPA's regulations that went into the

6 statute; correct?

7 A. Correct.

8 Q. You testified previously that in order to

9 change the labeling for a registered pesticide, the

10 registrant must submit it to EPA to review and approve;

11 correct?

12 MR. KRISTAL: For about the tenth time.

13 THE WITNESS: Yes.

14 Q. You also testified that EPA has to approve all

15 labeling and label changes?

16 MR. KRISTAL: Don't answer that question. Now

17 you're not only repeating questions that have been asked

18 at every other deposition, you're repeating questions

19 that you asked earlier today.

20 THE WITNESS: We --

21 MR. KRISTAL: Don't answer that question.

22 THE WITNESS: I'm not going to, but...

23 MR. FAYNE: You're instructing the witness not

24 to answer that question?

25 MR. KRISTAL: Yes, because it's now in the

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1 realm of harassment. We're six hours in and you're

2 repeating questions you asked today, and you're

3 repeating questions that have been asked at the other

4 depositions. If you don't have any more questions,

5 there's no --

6 MR. FAYNE: I've got more questions.

7 MR. KRISTAL: I know. Well, ask questions that

8 aren't repetitive. I've had very few objections in this

9 deposition.

10 Q. (BY MR. FAYNE:) A registrant can't make a

11 unilateral label change except for minor adjustments to

12 the label; correct?

13 A. Correct. There's a long passage in the

14 regulations on what such minor changes that don't

15 require a formal label amendment, and there's actually a

16 process for noting some minor changes.

17 Q. So a company couldn't just take it up on its

18 own to make a change to precautionary statements without

19 putting that change before EPA for review and approval?

20 MR. KRISTAL: Don't answer that question.

21 A. I've answered that question 16 times.

22 Q. I'll take that as a --

23 A. No change in my response.

24 Q. So despite IARC's finding that glyphosate-based

25 herbicides are a probable carcinogen, EPA has continued

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1 to approve the labels on glyphosate-based formulations
 2 for sale and use in the United States; correct?
 3 A. That's correct.
 4 Q. And it has approved labels that -- strike that.
 5 Despite EPA's awareness and review of the IARC
 6 monograph finding that glyphosate-based herbicides are a
 7 probable carcinogen, the agency has continued to approve
 8 labels that do not include a warning about
 9 carcinogenicity; correct?
 10 A. Correct.
 11 Q. As of today, EPA continues to find -- strike
 12 that.
 13 As of today, EPA continues to classify
 14 glyphosate as not likely to be carcinogenic to humans,
 15 notwithstanding IARC's finding; correct?
 16 A. Based on typical and expected exposures for the
 17 general population, yes.
 18 Q. So EPA's approval of the product labels on
 19 glyphosate-based formulations is consistent with its
 20 determination that glyphosate is not likely to be
 21 carcinogenic to humans; correct?
 22 A. Yes.
 23 MR. FAYNE: Can we go off the record for just
 24 one minute?
 25 VIDEOGRAPHER: Off the record at 3:48 p.m.

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1 (A brief recess was had.)
 2 VIDEOGRAPHER: Back on the record at 3:48 p.m.
 3 Q. (BY MR. FAYNE:) I'd like to turn back to your
 4 report. Go to paragraph 87.
 5 A. 87?
 6 Q. Yes.
 7 A. That's got to be up front.
 8 Q. Page 26, if I get the paragraph and page right
 9 this time.
 10 A. I'm there, sir.
 11 Q. You say, "In my opinion, the failure of EPA to
 12 require Monsanto or any other glyphosate-based herbicide
 13 registrant, to carry out a chronic oncogenicity feeding
 14 study using a formulated glyphosate-based herbicide does
 15 not obviate the scientific importance and regulatory
 16 risk-assessment relevance of such a study."
 17 Did I read that correctly?
 18 A. You did, sir.
 19 Q. You've testified previously, and I just want to
 20 confirm that nothing has changed, that EPA has not
 21 required Monsanto to conduct a long-term feeding study
 22 using a formulated product?
 23 A. That's correct.
 24 Q. And since your last depositions, you would
 25 agree that there are -- strike that.

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1 You agree that there are now many registrants
 2 of glyphosate-based products besides Monsanto; correct?
 3 A. Yes.
 4 Q. And agree that as of today EPA has never
 5 required any registrant of a glyphosate-based project to
 6 conduct a long-term feeding study using a formulated
 7 product?
 8 A. That is correct.
 9 Q. Are you aware -- strike that.
 10 Are you aware of anyone that has conducted a
 11 long-term cancer feeding study with a glyphosate-based
 12 herbicide?
 13 A. Yes.
 14 Q. Who is that?
 15 A. A team led by Seralini in France.
 16 Q. Just like to turn your attention to page 6 of
 17 your report. Actually, it starts on page 5. And it's
 18 paragraph 7(b).
 19 A. 7(b)?
 20 Q. Yes.
 21 Okay. You state, "Despite knowledge of the
 22 differences in toxicity and risks arising from exposures
 23 to formulated Roundup in contrast to pure glyphosate,
 24 Monsanto has not carried out critical long-term cancer
 25 feeding studies with Roundup. Nor has anyone else."

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1 Do you see that?
 2 A. Yes.
 3 Q. Are you testifying today that that statement is
 4 inaccurate?
 5 A. This is in the context of EPA-required chronic
 6 feeding studies. This passage, if you read the whole
 7 thing -- the whole passage, and it's really talking
 8 about the data generated by -- by registrants. And
 9 it -- so that's what this statement refers to.
 10 I was aware of the Seralini study. I've had
 11 extensive discussions in past depositions about the
 12 Seralini study. It -- I think it is clear from my past
 13 testimony I'm aware that it exists. I just mentioned it
 14 to you, but I do not -- I did not include it in this
 15 statement because it wasn't a study done in response to
 16 a data requirement following the GLP requirements and
 17 protocols in Part 158.
 18 Q. You're aware, of course, that EFSA has found
 19 the Seralini study to be unreliable; correct?
 20 A. I'm aware of much of the international reaction
 21 to the Seralini study, the efforts of Monsanto to
 22 undermine -- undermine it. I know EFSA has questions
 23 about it. I know that EPA has had questions about it.
 24 So -- and so I guess the answer to your question is yes.
 25 Q. Are you aware of any pesticides -- sitting here

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1 today, are you aware of any pesticide manufacturer that
 2 has conducted a long-term feeding study on a formulated
 3 product?
 4 A. No.
 5 Q. Would you agree then that it's not industry
 6 standard to conduct a long-term feeding study on a
 7 formulated product?
 8 MR. KRISTAL: Object.
 9 A. Oh, most -- most surely. It's not industry
 10 standard.
 11 Q. Going back to paragraph 87, which is the one I
 12 read previously.
 13 A. It's going to be about page 25 or something?
 14 Q. 26, yeah.
 15 A. 26. I'm there, sir.
 16 Q. So I had read the preceding sentence, that you
 17 state in your opinion Monsanto should have carried out a
 18 long-term feeding study; correct?
 19 A. On a formulated --
 20 Q. On a formulated product.
 21 A. Major formulated product, correct.
 22 Q. You then say, "It also does not relieve
 23 Monsanto of its obligation, as the dominant manufacturer
 24 of glyphosate-based herbicides, to carry out such a
 25 study in the interest of assuring its formulated

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1 products are as safe as the company had been claiming
 2 since the late 1970s."
 3 Did I read that correctly?
 4 A. Yes.
 5 Q. What is the source of Monsanto's obligation to
 6 carry out this study?
 7 A. Their obligation under FIFRA to assure that the
 8 pesticide products that it obtains, labels through the
 9 EPA process, and sells to users do not pose, in general,
 10 a risk of unreasonable adverse effects, of which
 11 certainly non-Hodgkin's lymphoma would classify as an
 12 adverse effect in humans.
 13 It is -- it is the responsibility of
 14 registrants under the statute to assure that their
 15 products do not pose excessive risk, i.e., an
 16 unreasonable adverse effect on man.
 17 And when a company has in its possession
 18 information that suggests that such risks may actually
 19 be occurring, and especially when a registrant has
 20 acknowledged that there are valid reasons to expect that
 21 their formulated products are more toxic than their pure
 22 technical active ingredient, that combination of facts
 23 is what leads me to my opinion that Monsanto had an
 24 obligation to conduct long-term chronic feeding studies
 25 on formulated product, given that it was manufacturing

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1 and selling the most heavily applied pesticide in the
 2 history of the world.
 3 This was not just an average pesticide. This
 4 is the most heavily used pesticide in history. There
 5 are more people exposed to it at a higher level than
 6 probably any pesticide ever. Monsanto was fully aware
 7 of those facts. And given that, given their professed
 8 statement and commitment to product stewardship and the
 9 safety of its users, and given the enormous amount of
 10 money that they were making off the product, they surely
 11 could have justified doing a chronic mouse and a chronic
 12 rat study on one of their major formulations.
 13 And had they done that, and if the studies had
 14 been clean, then we would not be sitting here. However,
 15 if they did the studies and the results were
 16 substantially different than the 14 animal bioassays
 17 conducted with technical glyphosate, the
 18 regulatory -- as I said in one place in the report, the
 19 regulatory history of Roundup would have been changed.
 20 It's impossible to predict exactly how, but it would
 21 have been changed.
 22 Q. We've discussed that there are other
 23 manufacturers of glyphosate-based herbicides; correct?
 24 A. Now there are.
 25 Q. Now there are. And you state in your report

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1 that Monsanto, as the dominant manufacturer of
 2 glyphosate-based herbicides, had an obligation to
 3 conduct this study; correct?
 4 A. Right. Correct.
 5 Q. Is it your position that other manufacturers of
 6 glyphosate-based herbicides don't have an obligation to
 7 conduct such a study?
 8 A. Certainly not until Monsanto has done it.
 9 Monsanto still is the dominant single company in the
 10 world. It's true that there's -- roughly half of the
 11 global supply of glyphosate is manufactured in China,
 12 but it's many companies that do it.
 13 So in terms of the economic importance of
 14 glyphosate-based herbicides to a company, there is no
 15 question but that Monsanto is the major global player.
 16 Q. So the obligation you're referring to turns in
 17 part on a company's market share; is that a fair
 18 characterization?
 19 A. Absolutely.
 20 And in all pesticide regulation, the company
 21 that typically first registers a pesticide active
 22 ingredient, a company that has a proprietary position in
 23 it, a company that has the most extensive set of labels,
 24 it is looked to by the rest of the industry as bearing
 25 the principal responsibility for assuring that the

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1 database is complete and that any questions that
 2 regulators have, any questions that the medical
 3 community might have, are being dealt with.
 4 Q. You've never designed a long-term cancer study;
 5 correct?
 6 A. Oh, my gosh. Are we back to that?
 7 Q. We're back to that.
 8 MR. KRISTAL: Yeah. Don't answer that.
 9 THE WITNESS: Yes.
 10 MR. ESFANDIARY: You've asked it four, five
 11 times now.
 12 MR. FAYNE: I'm just setting up the next line
 13 of questioning.
 14 MR. KRISTAL: It doesn't matter what you're
 15 setting up.
 16 Q. (BY MR. FAYNE:) Okay. As someone that's never
 17 designed a long-term cancer study, how can you -- strike
 18 that.
 19 As someone who has never designed a long-term
 20 cancer study, do you know whether it's feasible to
 21 conduct such a study on a formulated product?
 22 A. Absolutely it's feasible and it should have
 23 been done.
 24 Q. What is your -- what are you relying upon to
 25 assert that it's absolutely feasible?

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1 A. There's no -- no scientific, chemical,
 2 biological, physiological reason why a group of mice or
 3 rats could not be treated with or exposed to the
 4 formulated product as opposed to the technical active
 5 ingredient. There's absolutely no reason why a study
 6 couldn't be conducted in exactly the same way.
 7 Q. It's possible that administering the
 8 surfactants in formulated products could make the mice
 9 ill before you'd be able to obtain any meaningful
 10 results on cancer; isn't that correct?
 11 MR. KRISTAL: You're asking if something is
 12 possible? Is that the question?
 13 MR. FAYNE: Yes.
 14 THE WITNESS: That's a -- it's really an
 15 irrelevant question.
 16 In the design of a cancer study, EPA guidelines
 17 call for, first, a range-finding study. And in that
 18 range-finding study, groups of -- we'll use mice as the
 19 example -- are fed progressively higher doses to
 20 determine a maximum tolerated dose.
 21 It is -- it is virtually certain that the
 22 maximum tolerated dose in a Roundup study, including the
 23 standard POEA surfactant, would have been substantially
 24 lower than the maximum tolerated dose in the current
 25 animal feeding studies using technical glyphosate.

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1 Everybody knows that that would be the case.
 2 But that -- there's no reason why those range-finding
 3 studies couldn't be done and then the registrant would
 4 pick typically two intervening dose levels between zero,
 5 or the control group, and the maximum tolerated dose of
 6 animals fed the formulated product.
 7 Q. (BY MR. FAYNE:) I'd like to turn now to your
 8 discussion of ghost-writing, which starts on page 111.
 9 In paragraph 499 of your report -- let me know
 10 once you're there.
 11 A. I'm there.
 12 Q. You provide a definition of "ghost-authorship"
 13 or "ghost-writing"; correct?
 14 A. Yes.
 15 Q. And you state that, "Ghost-writing
 16 refers" -- "refers to three types of contributions to a
 17 written document by a person not listed as the author or
 18 among the co-authors of a document"; correct?
 19 A. Yes.
 20 Q. "Those three types of contributions include
 21 producing the first and original draft of a document or
 22 sections of a document"; correct?
 23 A. Correct.
 24 Q. The second is "revising a document or its
 25 sections in a way that adds to or alters the substantive

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1 content of the document"; correct?
 2 A. Yes.
 3 Q. And the third is "providing information and
 4 text, either as original writing or text derived from
 5 the existing document, that is used by a listed author
 6 or co-author or document editor to alter the content of
 7 a document and/or respond to comments made during peer
 8 review"; correct?
 9 A. These are the circumstances in which
 10 ghost-writing could occur in the standard process of
 11 publishing a scientific study in a peer-reviewed
 12 journal.
 13 Q. How did you come up with this definition of
 14 ghost-writing?
 15 A. This is a generally known, generally accepted
 16 understanding of what ghost-writing is.
 17 Q. Are you relying on any particular source to
 18 come up with the definition?
 19 A. I don't -- I don't -- I can't think of any
 20 specific source. I don't think there's any ambiguity or
 21 disagreement. This is the way Monsanto uses the term
 22 "ghost-writing."
 23 It's very clear from the many e-mails where
 24 Monsanto discusses its use of the technique of
 25 ghost-writing. So, I mean, I don't think

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1 there's -- that there's any real disagreement that these
 2 are examples of ghost-writing.
 3 Q. You derived your definition of ghost-writing in
 4 part on the way Monsanto described ghost-writing in
 5 internal e-mails. Is that accurate?
 6 A. No. No. No.
 7 I mean, I -- before I became involved in this
 8 case, I knew what ghost-writing was. Anybody that
 9 publishes in scientific journals understands the
 10 importance of accurate authorship.
 11 The COPE guidelines, which is one of the
 12 standard set of professional guidelines for scientists,
 13 discuss appropriate attribution of authorship. They
 14 describe accurate declarations of conflicts of interest.
 15 They describe when and how funding should be disclosed.
 16 And, you know, I don't think there's really any
 17 serious disagreement or ambiguity about each of these
 18 three examples of ghost-writing that I've noted in my
 19 report.
 20 MR. FAYNE: I'm marking as Exhibit 19 an
 21 article from COPE, which you just referred to in your
 22 testimony, about authorship disputes.
 23 (Exhibit 19 marked for identification.)
 24 Q. (BY MR. FAYNE:) Have you seen this document
 25 before?

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1 A. Yes.
 2 Q. If you go to the third paragraph, it states
 3 that, "Listing the authors tells readers who did the
 4 work and to ensure that the right people get the credit
 5 and take responsibility for the research. Although
 6 journal editors do not always agree among themselves on
 7 what constitutes authorship, many of them subscribe to
 8 the guidance from the International Committee of Medical
 9 Journal Editors (ICMJE), also known as the Vancouver
 10 group."
 11 Did I read that correctly?
 12 A. Yes, you did.
 13 Q. Are you familiar with the International
 14 Committee of Medical Journal Editors?
 15 A. I am.
 16 Q. Would you agree that ICMJE is an authoritative
 17 source on ethical guidelines for publishing in
 18 peer-reviewed journals?
 19 A. It's certainly one of the most widely accepted
 20 and aspired to.
 21 Q. Agree that many journal editors rely on it, as
 22 described in this COPE article?
 23 A. Yes.
 24 Q. Did you review the ICMJE guidelines in reaching
 25 your opinions in this case on ghost-writing?

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1 A. Actually, I've had to review them
 2 for -- because of my co-authorship of multiple papers
 3 over the last four, five years. Most of the nutrition
 4 papers that I've written, the journals rely on the ICMJE
 5 guidelines.
 6 Q. So if you look at the paragraph after the one
 7 we just read, it restates the ICMJE guidelines as they
 8 existed in 2001; correct?
 9 A. Yes.
 10 Q. And they state that, "Authorship credit should
 11 be based only on: (1) substantial contributions to
 12 conception and design, or acquisition of data, or
 13 analysis and interpretation of data; (2) drafting the
 14 article or revising it critically for important
 15 intellectual content; and (3) final approval of the
 16 version to be published."
 17 Did I read that correctly?
 18 A. Yes.
 19 Q. And the next sentence states, "Conditions (1),
 20 (2) and (3) must all be met"; correct?
 21 A. Yes.
 22 Q. So under these guidelines, in order to be
 23 listed as an author someone must meet all three
 24 criteria; correct?
 25 A. Yes.

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1 Q. Would you agree that these three criteria are
 2 different than the ones that you set forth in
 3 paragraph 499 of your report?
 4 A. Modestly.
 5 Q. Modestly?
 6 A. Yeah.
 7 Q. In your report, you state that, "Providing
 8 information and text that is used by a listed author or
 9 co-author without being listed as an author constitutes
 10 ghost-writing"; correct?
 11 A. Let's -- let's review the material under -- on
 12 the right-hand side column, "How to reduce the incidence
 13 of authorship problems."
 14 "People generally lie about authorship in two
 15 ways: By putting" -- First, "by putting down names of
 16 people who took little or no part in the research (gift
 17 authorship, see below)."
 18 Second bullet, "By leaving out names of people
 19 who did take part (ghost-authorship, see below)."
 20 It's my articulation and explanation of what I
 21 mean by "ghost-writing" or "ghost-authorship" is fully
 22 consistent with these guidelines.
 23 MR. FAYNE: I'm going to move to strike that
 24 answer as non-responsive.
 25 MR. KRISTAL: I think it's completely

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1 responsive, but we don't have to decide that right now.
 2 Nor do we have the authority to decide it.
 3 MR. FAYNE: Sure.
 4 I'll repeat the question and we can all decide
 5 whether that answer was responsive.
 6 MR. KRISTAL: Sure.
 7 Q. (BY MR. FAYNE:) The question was, you state in
 8 your report that providing information and text that is
 9 used by a listed author or a co-author without being
 10 listed as an author constitutes ghost-writing; correct?
 11 A. Correct.
 12 Q. Somebody could provide information or text
 13 that's used in a study or report without having final
 14 approval of the study; correct?
 15 A. Presumably, yes.
 16 Q. Somebody could produce the first draft of a
 17 document without having final approval of the document;
 18 correct?
 19 A. Yes.
 20 Q. Someone could revise a document without having
 21 final approval of the document; correct?
 22 A. Yes. What's your point?
 23 MR. KRISTAL: You don't have to ask -- your job
 24 is not to ask, just to answer.
 25 THE WITNESS: Jerry, you're being very nice,

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1 but I'm getting to the end of my rope on some of this.
 2 MR. KRISTAL: No, I understand. Be patient.
 3 We are now -- we've got less than an hour left of his
 4 Monsanto questions.
 5 Q. (BY MR. FAYNE:) In your view, if somebody
 6 provides edits to a document and isn't listed as an
 7 author, is that ghost-writing?
 8 A. Depends whether the edits change the substance
 9 of the paper or whether they're done by an editor or
 10 someone that is proofreading or really not -- not tasked
 11 or capable of changing the substantive content of the
 12 document.
 13 It's very common. For example, a lot of
 14 scientists don't have English as a first language.
 15 They -- they write some English, and then
 16 one -- somebody, sometimes even a person that's not
 17 listed as a co-author, will clean up the English so that
 18 proper tense verbs are used, et cetera.
 19 Q. Apart from language translation issues, editing
 20 a document for clarity, would that be something that
 21 would require somebody to be listed as an author?
 22 A. Probably not, if it's truly just for clarity
 23 and it doesn't change the substantive content. But the
 24 decision on how substantial the contributions of an
 25 editor are in terms of clarifying the content of a

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1 paper, you know, it has to be left up to the team.
 2 I can -- I can imagine that there are
 3 circumstances where, you know, substantial editing and
 4 refinement of the clarity of passages, some -- some
 5 teams may say, Let's add so-and-so as a co-author.
 6 There's no harm in doing that. There's no -- no reason
 7 preventing that from being done.
 8 Q. Understood, but my question is more aimed at
 9 when is it required in order to comply with ethical
 10 guidelines, not can you do it.
 11 A. Okay. All right. Fair enough.
 12 Q. So my question is, at what point is it
 13 required --
 14 A. I already answered that.
 15 Q. I under --
 16 A. When the editing changes the substantive
 17 content of the document.
 18 Q. By "substantive content," do you mean the
 19 conclusions of the document, of the study authors?
 20 A. No, I mean the substantive content of it, as
 21 opposed to the words that are chosen to express a given
 22 sentence.
 23 Do we really need to argue about what
 24 substantive content is?
 25 Q. You tell me.

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1 MR. ESFANDIARY: Well, Bill Heydens thought he
 2 could ghost-write things. I mean --
 3 MR. FAYNE: Can we not have people who aren't
 4 even defending the deposition testifying?
 5 Q. (BY MR. FAYNE:) In your report you focus
 6 primarily on four studies that you contend were
 7 ghost-written by Monsanto; is that fair?
 8 A. There's more than four.
 9 Q. But the four that you have independent sections
 10 for; correct?
 11 A. Yes. There's -- I -- I don't remember exactly
 12 how many there are independent sections on, but in the
 13 "Critical Reviews of Toxicology" special issue, there's
 14 five papers.
 15 Q. Okay. So let me walk through the section. So
 16 there's the Gary Williams, et al., 2000 paper; correct?
 17 A. Correct.
 18 Q. And that was published in the Journal of
 19 Regulatory Toxicology and Pharmacology?
 20 A. Correct.
 21 Q. There's the Williams, et al., 2012 paper that
 22 was published in the Journal of Toxicology and
 23 Environmental Health; correct?
 24 A. Yes.
 25 Q. There's the Kier and Kirkland 2013 paper

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1 published in the journal Critical Review in Toxicology;
 2 correct?
 3 A. Correct.
 4 Q. And then there's the Critical Reviews in
 5 Toxicology special issue on glyphosate risks; correct?
 6 A. Correct.
 7 Q. So I'm going to focus on those four, if that's
 8 okay with you.
 9 A. Sure.
 10 MR. KRISTAL: Would you do it if it wasn't okay
 11 with him?
 12 MR. FAYNE: Yes.
 13 Q. (BY MR. FAYNE:) You're aware, I imagine, that
 14 each of these journals have authorship guidelines;
 15 correct?
 16 A. Yes.
 17 Q. Did you review the authorship guidelines in
 18 forming your opinions in this case?
 19 A. I don't remember which ones I did and didn't.
 20 I had reviewed the Critical Review of Toxicology because
 21 I -- I had thought about submitting a paper to it
 22 myself.
 23 I don't remember which ones I specifically
 24 reviewed, but, you know, I'm fairly certain there's not
 25 a lot of difference across them, but they are generally

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1 consistent with the COPE and the International Committee
 2 on -- of Medical Journal Editors' guidelines.
 3 Q. Each of these four publications that I just
 4 listed -- one of which I understand is a series of
 5 articles; correct?
 6 A. Correct.
 7 Q. Each of those publications were reviews of
 8 studies in the existing published literature; correct?
 9 A. Yes.
 10 Q. They were not primary studies?
 11 A. Correct.
 12 Q. So I take it you're not contending that
 13 Monsanto manipulated the underlying data, scientific
 14 data, in any way; correct?
 15 A. I'm not speaking to that. I'm not saying they
 16 did; I'm not saying they didn't.
 17 Q. Do you have any reason to believe that the
 18 authors listed in these studies did not agree with the
 19 analyses or conclusions set forth in the studies?
 20 A. No.
 21 Q. Any reason to believe that Monsanto or its
 22 employees caused the authors to change their
 23 conclusions?
 24 A. Yes.
 25 Q. For which study?

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1 A. Well, several of them. There was multiple
 2 back-and-forths between Heydens and authors of the
 3 Critical Review of Toxicology special issue. You know,
 4 and as I said, there's extensive records that I've
 5 reviewed where Heydens was the Monsanto official who was
 6 most frequently involved in inserting his personal and
 7 presumably Monsanto corporate views in these journal
 8 articles as they were in the various stages of
 9 preparation.
 10 Q. Is it your testimony that the authors of any of
 11 these articles believed that the science showed
 12 glyphosate to be carcinogenic?
 13 A. I've never put that question to any of them
 14 directly so I have no idea whether they hold that view.
 15 The papers in which their names appear does not state
 16 that view.
 17 Q. And you're not testifying that they initially
 18 stated that view and then Monsanto somehow convinced
 19 them to reverse course and say that glyphosate was not
 20 carcinogenic; correct?
 21 A. I'm not aware of that occurring.
 22 Q. A little earlier you testified that, I believe,
 23 that it was well known by Monsanto that its formulated
 24 product was more toxic than glyphosate alone; correct?
 25 A. Correct.

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1 Q. You would agree with me that toxic does not
 2 necessarily equal carcinogenic; correct?
 3 A. Surely. There is multiple forms of toxicity
 4 that fall short of inducing cancer.
 5 Q. Toxic and carcinogenicity are two different
 6 concepts; correct?
 7 A. Well, carcinogenicity would -- is a toxic
 8 effect, but there are many other toxic effects.
 9 Q. And many substances can be toxic at certain
 10 doses; correct?
 11 A. To certain organisms, of course.
 12 Q. So even water at a high enough dose could be
 13 toxic; correct?
 14 A. Well, I don't know if it would be exactly -- it
 15 floods the lungs and keeps air from getting in and you
 16 die, so it's not -- it's -- that is not a toxic mode of
 17 action in inducing death.
 18 Q. So --
 19 A. Nor is getting crushed by an 18-wheeler.
 20 Q. Understood.
 21 A. Okay.
 22 Q. So for the members of the jury, just to be
 23 clear, when you say "toxic," you don't mean
 24 carcinogenic; correct?
 25 A. A pesticide that is toxic could also be a

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1 pesticide that is carcinogenic. A pesticide that is
 2 carcinogenic is by definition toxic because
 3 carcinogenicity is a component of or falls within the
 4 realm of toxic responses.
 5 Q. But a pesticide that is toxic is not
 6 necessarily carcinogenic?
 7 A. Correct.
 8 Q. So the fact that something is toxic does not
 9 mean that it's carcinogenic; correct?
 10 A. Not necessarily.
 11 Q. In your May deposition you were asked about a
 12 number of foreign regulatory determinations; do you
 13 recall that?
 14 A. EFSA, Canada, yes, I do remember that.
 15 Q. So you acknowledge that a number of foreign
 16 regulators, including Canada, EFSA, New Zealand,
 17 Australia, that they've classified glyphosate as
 18 non-carcinogenic; correct?
 19 A. We've discussed that, yes.
 20 Q. And that's all of those since the IARC
 21 determination in 2015; correct?
 22 A. Yes. Some of them were before, some of them
 23 after, and I don't believe any of them have changed.
 24 Q. Are you aware of any foreign regulatory body
 25 that has conducted a risk assessment of glyphosate since

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1 the IARC classification and concluded that glyphosate is
 2 carcinogenic?
 3 A. Not that -- not a reassessment that's resulted
 4 in a final conclusion, no.
 5 Q. So you would agree that as of today IARC is the
 6 only scientific or regulatory entity in the world that
 7 has reviewed the full evidence on glyphosate and
 8 concluded that glyphosate is a probable carcinogen;
 9 correct?
 10 A. Well, I think the Office of Environmental
 11 Health's assessment in the state of California has
 12 reached that conclusion.
 13 Q. And you're -- it's your understanding that -- I
 14 believe you're referring to OEHHA in California?
 15 A. Yeah, OEHHA.
 16 Q. That they conducted a risk assessment and
 17 reached that conclusion?
 18 A. Yes.
 19 Q. And they reviewed studies and data in reaching
 20 that conclusion?
 21 A. Yes. And, as you know, their regulations also
 22 require them to follow IARC determinations.
 23 Q. Right. So OEHHA was required by statute to
 24 classify glyphosate as a probable carcinogen based on
 25 the IARC determination; correct?

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1 A. Correct. But then they also did their own
 2 assessment of the science in an effort to fully
 3 implement the requirements of Proposition 65.
 4 Q. What assessment was that? Is there -- is there
 5 a name for it? I'm not sure what you're referring to,
 6 so I'm...
 7 A. Under Proposition 65, the OEHHA is responsible
 8 for coming up with a NSRL. I can't remember exactly
 9 what the acronym refers to, but it's a level of exposure
 10 below which there would not be a requirement for
 11 listing. So they set a benchmark for exposure.
 12 Q. That's a level of exposure below which the
 13 state agency does not believe there's any risk of
 14 cancer; correct?
 15 A. And any need to so label under Prop 65.
 16 Q. Right. So no need to label, and that's the
 17 level at which the agency believes there's no risk of
 18 cancer; correct?
 19 A. I don't think it would be accurate to say "no
 20 risk of cancer," but it is accurate to say it's a
 21 threshold below which the -- the agency would not
 22 require the listing of chemicals under Proposition 65.
 23 Q. Other than OEHHA in California, would you agree
 24 that as of today IARC is the only scientific or
 25 regulatory entity in the world that has reviewed the

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1 evidence and concluded that glyphosate is a probable
 2 carcinogen?
 3 A. Certainly there's no other one that's done an
 4 extensive and independent review as IARC has, no.
 5 Q. You state in paragraph 13 of your report that,
 6 "Monsanto has failed to meet its obligation by failing
 7 to warn about the risks of oncogenicity, genotoxicity,
 8 and, most recently, carcinogenicity."
 9 A. Correct.
 10 Q. Are you aware of any pesticide manufacturer
 11 that has placed a warning on its label for oncogenicity?
 12 A. Yes.
 13 Q. You've seen pesticide labels that include a
 14 warning for oncogenicity?
 15 A. Yes.
 16 Q. Which labels are those?
 17 A. Some of the 2,4-D labels have a warning.
 18 The -- I think Monsanto put a warning on Alachlor labels
 19 at the -- at one point in the history of Alachlor.
 20 I think there probably was a warning on the EDB
 21 labels, ethylene dibromide, and, you know, I'd have to
 22 go through the list of oncogenic active ingredients and
 23 look at -- look at the various labels, but I have not
 24 done that analysis in preparation for this case.
 25 Q. What about genotoxicity? Have you ever seen a

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1 pesticide label that includes a warning for
 2 genotoxicity?
 3 A. Let's see. I'd have to -- I'd have to do an
 4 assessment of different -- different active ingredients
 5 to answer that. I didn't -- I didn't make an effort to
 6 do that in preparation for this.
 7 Q. So sitting here today, you're not aware of any
 8 pesticide manufacturer that has added a genotoxicity
 9 warning on its pesticide product label; correct?
 10 A. Correct.
 11 Q. If you go to paragraph 20 of your report.
 12 A. Page 13?
 13 Q. Sounds right.
 14 A. I'm there.
 15 Q. Have you ever seen -- sorry, before we get to
 16 paragraph 20, have you ever seen a pesticide label that
 17 includes a warning based on an association found in
 18 epidemiological study, an association between the
 19 product or its ingredients and cancer?
 20 A. I think -- I certainly know that there's some
 21 chemical safety data sheets that do that, and there's
 22 some of the OSHA sheets that do that, but on a -- on an
 23 end-use product label, I'd have to, again, do an
 24 assessment.
 25 Q. So sitting here today, you're not aware of any

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1 pesticide product label that includes a warning that's
 2 based on an association found in an epidemiological
 3 study; correct?
 4 A. Solely on that, no.
 5 Q. So now turning to paragraph 20. You state
 6 that, "Two common assertions" -- sorry, I'm skipping to
 7 the second sentence of that paragraph.
 8 A. By all means, go for it.
 9 Q. "Two common assertions that have perpetuated a
 10 lack of care by some people applying Roundup herbicide
 11 are that Roundup is non-toxic and safe enough to drink."
 12 Do you see that?
 13 A. Yes.
 14 Q. What are you relying on for your statement that
 15 Monsanto has asserted that Roundup is safe enough to
 16 drink?
 17 A. I didn't say that Monsanto has asserted that.
 18 Many other people have.
 19 And what I say in this paragraph is that
 20 Monsanto has not done as much as it should have to
 21 discourage overstatements of the safety of
 22 glyphosate-based herbicides. And as I -- as I note in
 23 paragraph 20, the two most common simple statements are
 24 "It's safe enough to drink" and "It's non-toxic." Those
 25 two statements arise fairly regularly in public

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1 discussions, media discussions, advertising material,
 2 promotional meetings.
 3 It -- sometimes actual employees of Monsanto
 4 make those statements. Certainly William Heydens has
 5 made the statement multiple times. And I believe that
 6 it was part of Monsanto's effort to protect the freedom
 7 to operate for glyphosate-based herbicides that they
 8 wanted people to believe that glyphosate-based
 9 herbicides are non-toxic and they did very little to
 10 discourage people who were saying that it was also safe
 11 enough to drink.
 12 Q. Your testimony is that Monsanto employees and
 13 Dr. Heydens made the statement that Roundup is safe
 14 enough to drink. Did I understand you correctly?
 15 A. No. I said "non-toxic."
 16 Q. And I'm asking -- I apologize. I might have
 17 misunderstood that. I'm referring to the statement that
 18 it's safe enough to drink.
 19 Are you aware of any Monsanto employee or any
 20 agent of Monsanto that's made that statement?
 21 A. In the record in writing, I'd have to think
 22 about that.
 23 Q. So sitting here today, you're not aware of
 24 anything in writing in the record in the Roundup
 25 litigation that makes that statement; correct?

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1 A. From a Monsanto employee.
 2 Q. Are you aware of it being said by someone other
 3 than a Monsanto employee in the discovery record in this
 4 case?
 5 A. Yes.
 6 Q. Who's that?
 7 A. I'll have to -- I'll have to search it out.
 8 There's multiple instances of that.
 9 Q. So sitting here today, you can't identify for
 10 me a document where somebody either at Monsanto or
 11 outside of Monsanto made that statement in writing;
 12 correct?
 13 A. I'd have to -- I'd have to go back and find it.
 14 You know, I can guarantee you that that statement is in
 15 the record.
 16 MR. FAYNE: I'll pass the witness for now.
 17 THE WITNESS: Are you done?
 18 MR. FAYNE: I might have more questions for you
 19 after --
 20 THE WITNESS: Okay.
 21 MR. FAYNE: -- your counsel has a chance to go,
 22 but I'm going to pass him over to you.
 23 MR. KRISTAL: Why don't we take a five-minute
 24 break so we can get organized and move forward.
 25 THE WITNESS: And I want to use the boys' room.

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1 VIDEOGRAPHER: Off the record at 4:30.
 2 (A brief recess was had.)
 3 VIDEOGRAPHER: Back on the record at 4:39 p.m.
 4 EXAMINATION
 5 BY MR. KRISTAL:
 6 Q. Good afternoon, Dr. Benbrook. It's
 7 Jerry Kristal on behalf of the plaintiffs. I've got a
 8 couple of questions, if that's okay?
 9 A. Yes, sir.
 10 Q. First of all, just housekeeping. I'll mark as
 11 Exhibit 20 the December 26, 2018, errata sheet that we
 12 had handed to counsel for Monsanto towards the beginning
 13 of the deposition.
 14 (Exhibit 20 marked for identification.)
 15 Q. I'm not going to ask you questions about it,
 16 but I wanted it to be marked for purposes of the
 17 deposition, and it hadn't yet been marked.
 18 You were asked by Monsanto counsel about both
 19 corporate ethics and sources of Monsanto's obligations
 20 to do certain things.
 21 Do you generally remember that line of
 22 questioning?
 23 A. Yes.
 24 Q. Are you familiar with various international
 25 codes of conduct on pesticide management?

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1 A. Yes.
 2 MR. KRISTAL: I'm going to mark as Exhibit 21
 3 and Exhibit 22 two documents.
 4 (Exhibit 21 marked for identification.)
 5 (Exhibit 22 marked for identification.)
 6 Q. (BY MR. KRISTAL:) I'm going to hand them both
 7 to you, and I'll give a copy to counsel.
 8 Exhibit 21 is the International Code of Conduct
 9 on Pesticide Management. It has a date on the third
 10 page inside of 2014, and this is put out by the Food and
 11 Agricultural Organization of the United Nations World
 12 Health Organization.
 13 Are you familiar with this document?
 14 A. Yes, I am.
 15 Q. Okay. And are you familiar with this document
 16 as part of your 30-plus years of experience and
 17 knowledge base vis-à-vis corporate stewardship for the
 18 pesticide industry?
 19 A. Yes. I believe this document goes back to the
 20 mid '80s.
 21 Q. If you look at Exhibit 22, and if you -- about
 22 three-quarters of the way down, it says, "Resolution
 23 10/85," and then it has, on the --
 24 A. Oh, okay.
 25 Q. -- second page, "adopted November 28th, 1985."

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1 Is this the International Code of Conduct on the
 2 distribution and use of pesticides that you just
 3 referred to as the earlier version of this?
 4 A. Correct.
 5 Q. And through the years, from 1985 through 2014,
 6 has this been periodically revised?
 7 A. If my memory serves me correctly, I believe
 8 about four times, maybe five.
 9 Q. And do these documents establish stewardship
 10 industry standards of care for the pesticide industry?
 11 A. Yes, they do.
 12 Q. Now I'm going to show you -- I apologize to
 13 counsel, but I couldn't print this out.
 14 So let me first hand my laptop to counsel to
 15 take a look. It's a page from the monsanto.com website
 16 entitled "Product Stewardship and the Pledge."
 17 And if you want to scroll down, I'm going to
 18 ask questions about where Monsanto says it has adopted
 19 these international codes of conduct on pesticide
 20 management. And we can print that out at some point and
 21 make it a part of the record.
 22 So for purposes of recordkeeping, that portion
 23 of the monsanto.com website we'll mark as 23.
 24 MR. FAYNE: Counsel, are you representing
 25 that -- in this website there are links to two

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1 documents. Are you representing that these documents
 2 are the linked documents on the website?
 3 MR. KRISTAL: Well, if you scroll down, there's
 4 a link to the current version of the International Code
 5 of Conduct on Pesticide Management that Monsanto says it
 6 adopts.
 7 MR. FAYNE: Right. I see that link. I'm happy
 8 to click on it, but are you representing that this is
 9 that link?
 10 MR. KRISTAL: It's probably the more recent
 11 version of that, but we'll -- I'll click on it and hand
 12 it back to you after I ask some questions.
 13 Is that all right?
 14 MR. FAYNE: Sure.
 15 Q. (BY MR. KRISTAL:) So let me hand you or at
 16 least sit next to you.
 17 A. I know this.
 18 Q. You're familiar with this?
 19 A. I have this printed out in my files.
 20 Q. All right. On the Monsanto website under the
 21 Product Stewardship and the Pledge section, Monsanto
 22 writes, "We subscribe to international stewardship
 23 standards, including the International Code of Conduct
 24 on Pesticide Management issued by the United Nations
 25 Food and Agricultural Organization and fully supported

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1 by Responsible Care Global Charter."
 2 So I'm going to click on the link that Monsanto
 3 provides, but let me show it to you. Do they have a
 4 number of versions of the international code in
 5 different languages?
 6 A. Yes, they do.
 7 Q. All right. And have you gone through this
 8 exercise of actually opening this on the Monsanto
 9 website?
 10 A. But only the English version.
 11 Q. Right. Right.
 12 A. And you're going to get this document. This
 13 is -- I'm almost sure this is the most recent one, 2014.
 14 Q. That's a 2014, is it?
 15 A. Yeah.
 16 MR. FAYNE: Can I see the document?
 17 MR. KRISTAL: It's hopefully opening. Tell you
 18 what, why don't we go off the video record. When it
 19 completely opens, I'll show it to you, then we'll go
 20 back on the video record. Is that all right?
 21 VIDEOGRAPHER: Off the record at 4:46 p.m.
 22 (A brief recess was had.)
 23 VIDEOGRAPHER: Back on the record at 4:48 p.m.
 24 Q. (BY MR. KRISTAL:) We are going to mark, after
 25 we print out the linked International Code of Conduct

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1 that the Monsanto website takes it to, and what version
 2 is that?
 3 MR. FAYNE: Object.
 4 Q. What year?
 5 A. 2014.
 6 MR. FAYNE: I'm going to object to the
 7 characterization of that as the linked international
 8 code of conduct document.
 9 MR. KRISTAL: Why is that?
 10 MR. FAYNE: I see it's on the screen, but I
 11 don't know that that's where it's linked.
 12 MR. KRISTAL: Okay. Why don't you go back.
 13 We'll go off the record.
 14 VIDEOGRAPHER: Off the record at 4:48 p.m.
 15 (A brief recess was had.)
 16 VIDEOGRAPHER: Back on the record at 4:52 p.m.
 17 Q. (BY MR. KRISTAL:) All right. While we were
 18 off the record, we opened up the link on the Monsanto
 19 website in the Product Stewardship Pledge section
 20 entitled "International Code of Pesticide Management."
 21 And do you have that --
 22 A. I do.
 23 Q. -- open in front of you?
 24 And what is the date on the linked
 25 international code that's on the Monsanto website?

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1 A. 2014.
 2 Q. Okay. So we will print and mark as Exhibit 24
 3 the opened linked version.
 4 And if you would look at Exhibit 21.
 5 A. 21.
 6 Q. Thank you. And I'll have a couple of questions
 7 about this.
 8 Does this document establish pesticide industry
 9 what are called stewardship standards?
 10 A. Yes.
 11 Q. And if you would turn to page 8.
 12 A. The Article 3, Pesticide Management?
 13 Q. Yes.
 14 Does this document, in terms of its general
 15 format, lay out both government responsibilities for
 16 pesticide management and pesticide industry
 17 responsibilities?
 18 MR. FAYNE: Object to form.
 19 A. Yes.
 20 Q. Okay. And on page 8, Section 3.2, under
 21 "Pesticide management," reads, "Pesticide industries
 22 should adhere to the provisions of this code as a
 23 standard for the manufacture, distribution, sale and
 24 advertising of pesticides."
 25 Do you see that?

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1 A. Yes.
 2 Q. And that is a part of this stewardship for the
 3 pesticide industry?
 4 A. Code of conduct, stewardship, yes.
 5 Q. And in the lower right-hand corner -- I'm
 6 sorry. Under 3.5, "Pesticide industry and traders
 7 should observe the following practices in pesticide
 8 management."
 9 Correct? That's what it says?
 10 A. Yes.
 11 Q. And then under that, 3.5.3, "Pay special
 12 attention to the choice of pesticide formulations and to
 13 presentation, packaging and labeling in order to
 14 minimize risks to users, the public and the
 15 environment."
 16 Is that part of the stewardship pesticide
 17 industry standard adopted by Monsanto?
 18 A. Yes, it is.
 19 MR. FAYNE: Objection to the characterization
 20 that it was adopted by Monsanto.
 21 MR. ESFANDIARY: It's on the website.
 22 MR. KRISTAL: It's on their website with a link
 23 to it. Other than that --
 24 THE WITNESS: But the --
 25 MR. KRISTAL: And they said they're adopted.

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1 Q. (BY MR. KRISTAL:) Okay. The next page, 3.5.6
 2 under "Pesticide industry responsibilities," "Retain an
 3 active interest in following their products through
 4 their entire lifecycle, keeping track of major uses and
 5 the occurrence of any problems arising from the use of
 6 their products as a basis for determining the need for
 7 changes in labeling, directions for use, packaging,
 8 formulation, or product availability."
 9 Is that also part of this industry standard
 10 adopted by Monsanto?
 11 A. Yes, it is.
 12 MR. FAYNE: Objection. Same objection.
 13 Q. Under Section 3.11 of the pesticide management
 14 standard, "Governments, pesticide industry and the
 15 application equipment industry should develop and
 16 promote the use of pesticide application methods and
 17 equipment that minimize the risk from pesticides to
 18 human and animal health and/or the environment and that
 19 optimize efficiency and cost effectiveness, and should
 20 conduct periodic practical training in such activities."
 21 Is that another part of this standard that is
 22 linked to the Monsanto website?
 23 MR. FAYNE: Same objection.
 24 A. Yes, it is.
 25 Q. All right. And if you turn to page -- I'm

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1 sorry, to Exhibit 22 now, the 1985 standard, does this
 2 also set out -- if you'd look, for example, at
 3 Section 3.3 -- government standards that should be --
 4 A. What page are we on?
 5 Q. It's Section 3.3.
 6 A. Okay. Get the -- okay. I'm there.
 7 Q. Sets out government standards --
 8 A. Yeah, 3.3.
 9 Q. -- as well as pesticide manufacturing
 10 standards?
 11 A. Correct.
 12 Q. All right. 3.4 of the 1985 International Code
 13 of Conduct on the Distribution and Use of Pesticides
 14 reads, "Manufacturers and traders should observe the
 15 following practices in pesticide management, especially
 16 in countries without legislation and the means of
 17 implementing regulations."
 18 3.4.2, "Pay special attention to formulations,
 19 presentation, packaging and labeling in order to reduce
 20 hazards to users to the maximum extent possible,
 21 consistent with the effective functioning of the
 22 pesticide in the particular circumstances in which it is
 23 used."
 24 Is that part of this 1985 code of conduct?
 25 A. Yes, it is.

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1 Q. And is this part of the reason that -- part of
 2 the basis for your opinion that Monsanto should have
 3 included an oncogenicity warning on its label as of the
 4 time of the 1983 mouse study?
 5 MR. FAYNE: Object to form.
 6 A. As of the time of the CARC review in 1985,
 7 correct.
 8 Q. And is it also part of the basis of your
 9 opinion in terms of Monsanto's obligation to conduct the
 10 chronic feeding study with glyphosate-based herbicides?
 11 MR. FAYNE: Object to form.
 12 A. Yes.
 13 Q. And if you look at Section 3.4.4, "Retain an
 14 active interest in following their products to the
 15 ultimate consumer, keeping track of major uses and the
 16 occurrence of any problems arising in the actual use of
 17 their products as a basis for determining the need for
 18 changes in labeling, use directions, packaging,
 19 formulation, or product availability."
 20 Is that part of this standard and part of the
 21 basis of your opinion in terms of Monsanto's
 22 obligations?
 23 MR. FAYNE: Object to form.
 24 A. Yes, it is.
 25 Q. And under 3.4.3, "A manufacturer should

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1 provide, with each package of pesticide, information and
 2 instructions in a form and language adequate to ensure
 3 safe and effective use."
 4 Is that also part of the basis of your opinion
 5 for Monsanto's obligations?
 6 MR. FAYNE: Object to form.
 7 A. Yes, it is.
 8 Q. You were asked if there was any company that
 9 ever put an oncogenicity warning on a product, and you
 10 mentioned Alachlor. First of all, what is Alachlor?
 11 A. It's a grass herbicide at the time manufactured
 12 by Monsanto.
 13 MR. KRISTAL: And it's A-L-A-C-H-L-O-R, capital
 14 A.
 15 (Exhibit 25 was marked for identification.)
 16 Q. (BY MR. KRISTAL:) I'm marking as Exhibit 25
 17 two pages from the 1985 Monsanto Crop Chemicals Sample
 18 Label Guide, and on the second page of the document, up
 19 top, it reads, "Important 1985 label changes?"
 20 Do you see that?
 21 A. Yes.
 22 Q. And is this the basis in terms of your
 23 understanding that Monsanto itself had put an
 24 oncogenicity warning on its Alachlor?
 25 A. Yes.

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1 MR. FAYNE: Object to form.
 2 Q. In the -- under the section "Important 1985
 3 label changes," the first bullet point in the left-hand
 4 column, "As mentioned earlier, the results of tests in
 5 which laboratory animals were fed Alachlor daily
 6 throughout most of their lifetimes led to the additions
 7 of a warning statement on the label, "The use of this
 8 product may be hazardous to your health. This product
 9 contains Alachlor, which has been determined to cause
 10 tumors in laboratory animals."
 11 Is that an oncogenicity warning?
 12 A. Yes.
 13 Q. In this label change announcement from 1985, is
 14 there also another change that's being announced for the
 15 products that are listed here to "Wear goggles or face
 16 shield, rubber gloves, long trousers, long sleeve shirt
 17 or jacket of tightly woven material, along with boots
 18 high enough to cover ankles when transferring and mixing
 19 and when adjusting, repairing or cleaning equipment.
 20 Wear rubber boots when pouring from open containers or
 21 when re-entry is made into fields where the product has
 22 been applied through center pivot irrigation system and
 23 the field is still wet."
 24 MR. FAYNE: Object to form.
 25 Q. Is that something Monsanto was putting on the

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1 label for the products listed on the second page of
 2 this, similar to what EPA wanted Monsanto to put on the
 3 Roundup label in terms of the worker protection
 4 provisions?
 5 MR. FAYNE: Object to form.
 6 A. Yes, very -- very similar and
 7 essentially -- essentially the same time. This is 1985,
 8 and the glyphosate registration document was 1986.
 9 Q. And the new label specifies, in addition to
 10 what I just read, "Clothing which comes in contact with
 11 Lasso must be washed before reuse. Clothing or other
 12 materials which has become drenched with the
 13 concentrated pesticide must be disposed of in a sanitary
 14 landfill by incineration or, if allowed by state and
 15 local authorities, by burning. If burned, stay out of
 16 smoke."
 17 And is that similar to one of the worker
 18 protection provisions EPA had requested Monsanto put on
 19 the Roundup label regarding clothing which comes in
 20 contact and is drenched by Roundup?
 21 MR. FAYNE: Object to form.
 22 A. Its -- it's very similar, yes.
 23 Q. Over lunch we had referred to a homework
 24 assignment where you were going to be looking at the
 25 Dr. Parry-submitted reports to Monsanto to identify the

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1 11 recommended studies he was proposing.
 2 Do you recall that line of questioning?
 3 A. Yes.
 4 Q. And did you go through that exercise over
 5 lunch?
 6 A. Yes.
 7 Q. Did Monsanto counsel then not ask you about
 8 that?
 9 A. Correct.
 10 Q. Okay. And were you also asked to look up two
 11 of the studies that had been referenced in your report
 12 regarding genotoxicity and in vivo chromosomal damages?
 13 A. Correct.
 14 Q. And did you do that?
 15 A. Yes, I did.
 16 Q. Over the lunch break?
 17 A. Yeah. Yes.
 18 Q. And were you asked about that by Monsanto
 19 counsel?
 20 A. No.
 21 Q. I'd like you to try to find Exhibit 11 that was
 22 given to you earlier today by Monsanto counsel.
 23 MR. FAYNE: Which exhibit is that?
 24 MR. KRISTAL: It's the electronic code of
 25 federal regulations regarding recording requirements.

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1 THE WITNESS: Got it.
 2 MR. FAYNE: Could you give me one second?
 3 MR. KRISTAL: Sure. Take your time.
 4 MR. ESFANDIARY: You got it?
 5 MR. FAYNE: Yeah. Thank you.
 6 Q. (BY MR. KRISTAL:) You were asked about certain
 7 sections by counsel for Monsanto. Let me ask you about
 8 other sections.
 9 First of all, on the first page,
 10 Section 159.153 entitled "Definitions," do you see that?
 11 A. I see. I do.
 12 Q. If you would turn to the next page and look at
 13 the definition of "qualified expert."
 14 Do you see it there up top?
 15 A. I do.
 16 Q. Okay. "Qualified expert means one who by
 17 virtue of his or her knowledge, skill, experience,
 18 training or education could be qualified by a court as
 19 an expert to testify on issues related to the subject
 20 matter on which he or she renders a conclusion or
 21 opinion. Under Rule 702 of the Federal Rules of
 22 Evidence, a person may be qualified as an expert on a
 23 particular matter by virtue of knowledge, skill,
 24 experience, training, or education. In general, EPA
 25 wants registrants to report information when a person

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1 has relevant expert credentials (e.g., a medical doctor
 2 giving a medical opinion, a plant pathologist giving an
 3 opinion on plant pathology, et cetera)."
 4 Do you see that?
 5 A. Yes, I do.
 6 Q. Would Dr. Parry fall under the definition of
 7 qualified expert in the field of genotoxicity?
 8 MR. FAYNE: Objection. Calls for a legal
 9 conclusion.
 10 A. Yes, he certainly would.
 11 Q. And if you turn to page 3 of 14,
 12 Section 159.158.
 13 A. I'm there.
 14 Q. And that section is entitled "What information
 15 must be submitted?" is it not?
 16 A. Correct.
 17 Q. And it reads, Section A, "General. Information
 18 which is reportable under this part must be submitted if
 19 the registrant possesses or receives the information and
 20 the information is relevant to the assessment of the
 21 risks or benefits of one or more specific pesticide
 22 registrations currently or formerly held by the
 23 registrant.
 24 "Information relevant to the assessment of the
 25 risk or benefits also includes conclusions or opinions

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1 rendered by a person who meets any of the following: (1)
 2 who was employed or retained directly or indirectly by
 3 the registrant and was likely to receive such
 4 information; (2) from whom the registrant requested the
 5 opinions or conclusions in question, and, (3), who is a
 6 qualified expert in Section 159.153(b).
 7 Do you see that?
 8 A. Yes, I do.
 9 Q. Okay. Would the Dr. Parry reports that were
 10 sent to Monsanto at their request on genotoxicity fall
 11 under the category 159.158, information that must be
 12 submitted to the EPA?
 13 MR. FAYNE: Objection. Calls for a legal
 14 conclusion.
 15 A. Yes, it would. Or yes, they would.
 16 Q. And would this also apply to the TNO reports
 17 and preliminary reports that Monsanto received regarding
 18 the dermal absorption experiments?
 19 MR. FAYNE: Objection. Calls for a legal
 20 conclusion. Also vague as to what "this" is.
 21 A. Yes, it would.
 22 Q. Okay. If you would be kind enough to go to
 23 page 157 of your report, Exhibit 3, where you discuss
 24 the FIFRA Section 6(a)(2) reporting requirements.
 25 A. Okay.

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1 Q. Page 157?
 2 A. Paragraph 157?
 3 Q. No, page 157, paragraph 734.
 4 A. Way in there. What did I write such a long
 5 report for? Okay. I'm there.
 6 Q. And you have a three-paragraph section entitled
 7 "Section 6(a)(2) of FIFRA," do you not?
 8 A. Yes, I do.
 9 Q. On paragraph 735, you wrote the following:
 10 "The June 1986 registration standard for glyphosate
 11 contains this passage: 'Registrants,'" and you wrote at
 12 that -- you added "[at this time for glyphosate, only
 13 Monsanto] are reminded that FIFRA Section 6(a)(2)
 14 requires them to submit factual information concerning
 15 possible unreasonable adverse effects of the pesticide
 16 at any time they become aware of such information,
 17 including interim or preliminary results of studies if
 18 those results suggest a possible adverse effect on man
 19 or the environment. This requirement continues as long
 20 as your products are registered by the agency."
 21 Did the TNO study results that were provided to
 22 Monsanto on the dermal absorption fall under that
 23 definition?
 24 MR. FAYNE: Objection. Calls for a legal
 25 conclusion.

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1 A. Yes.
 2 Q. And is that part of the reason it is your
 3 opinion that they had to have been submitted to EPA?
 4 A. Because they contained new information that
 5 shed new light on the potential of adverse effects on
 6 human beings exposed to glyphosate-based herbicides.
 7 (Exhibit 26 was marked for identification.)
 8 Q. (BY MR. KRISTAL:) I'm marking as Exhibit 26 an
 9 e-mail from [REDACTED] M-A-R-T-E-N-S, dated
 10 April 19th, 1999. And it is to a number of people,
 11 including Larry Kier, K-I-E-R, William Heydens,
 12 H-E-D -- strike that -- H-E-Y-D-E-N-S, Donna Farmer, and
 13 others. And it's entitled "Meeting minutes 2/25."
 14 Do you see that?
 15 A. I do.
 16 Q. Are you familiar with this document?
 17 A. Yes.
 18 Q. And is this a document that had been produced
 19 by Monsanto in this litigation?
 20 A. Yes.
 21 Q. And [REDACTED] writes, "Donna, thanks for
 22 this. It accurately reflects the situation. Please
 23 take note of the following update. I received from
 24 Professor Parry the signed secrecy agreement. As a
 25 response, I sent him a letter of authorization and all

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1 relevant reports and publications re mutagenicity of
 2 glyphosate, its formulations, and the surfactants for
 3 which we have mutagenicity testing data."
 4 Do you see that?
 5 A. I do.
 6 Q. So when you were asked earlier whether or not
 7 Monsanto had sent Dr. Parry all of the relevant genotox
 8 literature, does this indicate that in fact they had?
 9 MR. FAYNE: Objection.
 10 A. Yes, it does.
 11 Q. And on the second page of the document, under
 12 "Section 4, Global Experts."
 13 A. I'm just looking down through --
 14 Q. Oh, okay.
 15 A. -- this list. On page 2?
 16 Q. "Section 4, Global Experts."
 17 MR. FAYNE: Counsel, did -- was this
 18 highlighting in the original document, or did you add
 19 it?
 20 MR. ESFANDIARY: No, that's added.
 21 MR. FAYNE: What's that?
 22 MR. ESFANDIARY: That's added.
 23 MR. FAYNE: That's added by you-all?
 24 MR. ESFANDIARY: Yeah.
 25 MR. FAYNE: Okay. Just want to make sure.

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1 THE WITNESS: I'm sorry, I'm missing where you
 2 are.
 3 Q. (BY MR. KRISTAL:) Sure. Page 2, Section --
 4 A. So we're down into the Donna Farmer?
 5 Q. Yes.
 6 A. All right.
 7 Q. Let's state that. Donna Farmer had meeting
 8 minutes dated 2/25 that she had prepared April 17th,
 9 1999, which is on the second page of this e-mail; is
 10 that correct?
 11 A. Yes.
 12 Q. And she writes, "Please find the meeting
 13 minutes and actions from our 2/25 meeting below."
 14 A. Correct.
 15 Q. Does she not?
 16 A. Yes.
 17 Q. And paragraph 4 of the meeting minutes is
 18 entitled "Global Experts"?
 19 A. Yes.
 20 Q. And it reads, "Reviewed Dr. Parry's analysis.
 21 What is our next step? Dr. Parry concluded on his
 22 evaluation of the four articles that glyphosate is
 23 capable of producing genotoxicity both in vivo and in
 24 vitro by a mechanism based upon the production of
 25 oxidative damage. The data that Dr. Parry evaluated is

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1 limited and is not consistent with other better
 2 conducted studies. In order to move Dr. Parry from his
 3 position, we will need to provide him with the
 4 additional information as well as asking him to
 5 critically evaluate the quality of all the data,
 6 including the open literature studies."
 7 Is that statement, "In order to move Dr. Parry
 8 from his position," an example of Monsanto dealing with
 9 adverse information obtained by an expert?
 10 MR. FAYNE: Objection.
 11 A. Yes.
 12 Q. With respect to TNO, if you'd go to the
 13 Exhibits 12 and 13. 12 is the final report. 13 is the
 14 draft TNO report.
 15 A. 12 and 13?
 16 Q. Yes, sir.
 17 A. There's 12 and there's 13. Okay. I got them.
 18 Q. First of all, did Monsanto choose TNO to
 19 conduct the study, the dermal absorption study?
 20 A. Yes, they --
 21 MR. FAYNE: Objection.
 22 THE WITNESS: Yes, they did.
 23 Q. (BY MR. KRISTAL:) And if you look on what's
 24 listed as page 8 of 41 of Exhibit 12, the final study.
 25 A. 8 of 41?

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1 Q. Yes.
 2 A. Page 8? Yes.
 3 Q. You're aware that Dr. F. [REDACTED] --
 4 B-R-O-E-C-K-A-E-R-T -- was the study monitor from
 5 Monsanto?
 6 A. Correct.
 7 Q. He's listed here as a study monitor?
 8 MR. FAYNE: Objection. Lacks foundation.
 9 A. Yes. That's [REDACTED]
 10 Q. Okay. And if you look at Exhibit 13, the
 11 draft, that was faxed to whom?
 12 A. To Dr. [REDACTED]
 13 Q. Okay. The person that was listed as the study
 14 monitor?
 15 A. Correct.
 16 Q. And who is he employed by, according to this
 17 fax?
 18 A. Monsanto Europe.
 19 Q. Okay. And on the Exhibit 12, the final report,
 20 is there a Good Laboratories Practice Statement of
 21 Compliance?
 22 A. Yes, there --
 23 MR. FAYNE: Sorry. Which page are we on now?
 24 MR. KRISTAL: We are on page 5 of 41 of
 25 Exhibit 12.

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1 THE WITNESS: Yes, there is.
 2 Q. (BY MR. KRISTAL:) And it's entitled "Statement
 3 of GLP compliance."
 4 "We, the undersigned, hereby declare that this
 5 report constitutes a true and complete representation of
 6 the procedures followed and of the results obtained in
 7 this study by TNO Nutrition and Food Research, and that
 8 the study was carried out under our supervision. The
 9 study was carried out in accordance with the OECD
 10 Principles of Good Laboratory Practice."
 11 Do you see that?
 12 A. Yes, I do.
 13 Q. And does that same statement appear in the
 14 draft, Exhibit 13, accepted as not signed and dated?
 15 A. No, it doesn't.
 16 Q. If you look at page 4 of --
 17 A. The statement appears, but it's not signed.
 18 Q. Right. Exactly. So is that the -- in the
 19 draft, the same exact statement of Good Laboratory
 20 Practice compliance was sent among Monsanto, it just had
 21 not yet been signed and dated?
 22 A. That is correct.
 23 Q. All right. And if you look on page 8 of
 24 Exhibit 30 -- 13, the draft.
 25 A. Okay, page 8. I'm there.

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1 Q. It's entitled "GLP Compliance Monitoring Unit
 2 Statement."
 3 MR. FAYNE: I'm sorry. You're on Exhibit 13?
 4 MR. KRISTAL: Yes. I'm sorry, 6. Looks like
 5 an 8.
 6 THE WITNESS: 8.
 7 Q. (BY MR. KRISTAL:) It does look like an 8, but
 8 it's page 6.
 9 And it has an endorsement of compliance with
 10 good laboratory practices dated December 23rd, 1999; is
 11 that correct?
 12 A. Yes.
 13 Q. And if you turn to the next page, page 7 of
 14 Exhibit 13, it's entitled "Testing Facility," and it
 15 lists the name and address and phone numbers of TNO,
 16 does it not?
 17 A. Yes.
 18 Q. And then it reads, in the draft, "This unit is
 19 operating in full compliance with the OECD GLP
 20 principles." Do you see that?
 21 A. Yes.
 22 Q. So whether or not the good laboratory
 23 compliance statement was signed and dated in the draft,
 24 is there any question that TNO was operating under good
 25 laboratory practices?

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1 MR. FAYNE: Object to form.
 2 A. Not that I'm aware of.
 3 Q. Okay. And is the draft, Exhibit 5, does it
 4 have the same quality assurance statement that is in the
 5 final report, except for the fact that in the draft it
 6 had not yet been signed and dated?
 7 A. Yes, it does.
 8 Q. Okay. Is there any indication anywhere in this
 9 draft or final report that the study was conducted under
 10 any circumstances other than under good laboratory
 11 practices?
 12 A. Not that I'm aware of.
 13 Q. If you would turn to page 18 of the final
 14 study, Exhibit 12.
 15 A. Page 18?
 16 Q. Yes. Where it says "Deviations of the
 17 protocol."
 18 A. Yes, I have it.
 19 Q. Okay. Monsanto counsel read the second
 20 paragraph, which ends with the statement, "Therefore,
 21 upon request of the sponsor, the experiment has not been
 22 performed using viable" skin -- "human skin membranes."
 23 Do you see that?
 24 MR. FAYNE: Objection. Mischaracterizes my
 25 question.

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1 A. I see that sentence. You read it correctly.
 2 Q. Okay. In the initial protocol of the study,
 3 the initial design of the study, was there also going to
 4 be a human skin membrane dermal absorption portion of
 5 the study?
 6 MR. FAYNE: Objection. Lacks foundation.
 7 A. That was the original plan. It came out of
 8 Dr. Donna Farmer's office. There was \$70,000 pledged to
 9 the work at TNO. And the rat skin penetration study,
 10 this initial one, and the initial human skin penetration
 11 study were the first of -- I think there were seven
 12 studies that were going to be done on different
 13 formulated products.
 14 Q. Okay. So the final TNO report indicates that
 15 the experiment on the human skin membranes had not been
 16 done because of the variations in recovery?
 17 MR. FAYNE: Are you reading from the report?
 18 Q. I'm summarizing what appears before the
 19 sentence that says, "Therefore, upon the request of the
 20 sponsor."
 21 A. When --
 22 MR. FAYNE: Object to the characterization of
 23 the document.
 24 THE WITNESS: When Monsanto received the draft
 25 report, a decision was made to terminate any further

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1 work with TNO, and that included the human skin membrane
 2 study that was going to be a part of the first contract,
 3 if you will.
 4 Q. (BY MR. KRISTAL:) Okay. And did you write
 5 about the reason Monsanto articulated internally for
 6 stopping the study?
 7 A. Yes. It's in my expert report.
 8 Q. Okay. If you would turn to paragraph 444.
 9 A. Okay. 444. Okay. 444, I'm there.
 10 Q. Okay.
 11 A. Page 98.
 12 Q. And do you quote in paragraph 444 from an
 13 April 4th, 2002, e-mail from the Monsanto study monitor
 14 [REDACTED]
 15 A. Yes, I do.
 16 Q. Okay. And could you read the quote that you
 17 wrote in paragraph 444 of your report regarding why
 18 Monsanto decided to stop the study?
 19 A. "We came to the conclusion that the penetration
 20 of glyphosate would have been (probably) greater than
 21 the 3 percent already imposed by the German authorities.
 22 We decided, thus, to stop" -- in capital letters,
 23 bolded -- "the study effective today."
 24 Q. Okay. And was that statement contained from an
 25 e-mail produced by Monsanto in this litigation?

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1 A. Right. The MONGLY number is given in my expert
 2 report.
 3 Q. Is the statement of the reason for stopping the
 4 study that was articulated internally with Monsanto
 5 consistent with the reason that appears in the final
 6 study report that we just read?
 7 A. No.
 8 Q. I want to talk to you about the line of
 9 questioning regarding the failure of EPA to make
 10 findings that Monsanto violated any regulations.
 11 Do you generally recall those questions?
 12 A. Yes.
 13 Q. Okay. This may seem like a silly question, but
 14 let me ask it anyway. If a person robs a bank and
 15 doesn't get caught, does that mean that the bank wasn't
 16 robbed?
 17 MR. FAYNE: Objection.
 18 A. No.
 19 Q. Okay. And the fact that EPA did not make a
 20 finding of violations of regulations, does that mean
 21 that Monsanto did not violate the regulations?
 22 A. Not necessarily.
 23 Q. Okay. If you look on page 391 -- I'm sorry.
 24 The worker safety provision portion of your report. I
 25 believe it's paragraph 399.

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1 A. I'm there.
 2 Q. Okay. What were the worker safety provisions
 3 that the EPA was requesting Monsanto add to its label?
 4 A. There were some requirements involving personal
 5 protective clothing and equipment, which included either
 6 goggles or a face shield, chemical-resistant gloves, a
 7 chemical-resistant apron, chemical-resistant shoes or
 8 shoe coverings or boots. That was the required personal
 9 protective equipment.
 10 There's a provision on when that additional
 11 P -- it's PPE is the acronym for personal protective
 12 equipment -- a provision that specifies when such
 13 equipment is to be worn.
 14 And then in terms of the handling, the
 15 management of the gloves, there's -- under "Important,"
 16 it says, "Before removing gloves, wash them with soap
 17 and water. Always wash hands, face and arms with soap
 18 and water before smoking, eating, drinking or
 19 toileting."
 20 And then there's a provision that refers to the
 21 handling of clothing that becomes contaminated or
 22 drenched with spray material.
 23 "After work, wash protective clothing and
 24 equipment with soap and water. Any personal clothing
 25 worn during the application should be laundered

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1 separately from household articles," and that "Clothing
 2 or protective equipment that becomes heavily
 3 contaminated or drenched with glyphosate has to be
 4 disposed of in accord with state and local regulations,"
 5 a language very reminiscent of what we read in the case
 6 of the label changes on Alachlor.
 7 And it emphasizes, again, in all capitals,
 8 "Heavily contaminated or drenched clothing cannot be
 9 adequately decontaminated."
 10 Q. Okay. Now, did Monsanto ever effectuate what
 11 EPA was requesting them to do with respect to putting
 12 those worker protection provisions in its label?
 13 A. No, it -- no, it has not.
 14 Q. You were asked a question as to whether the
 15 reason for that worker protective provisions related to
 16 skin irritation and eye irritation; correct?
 17 A. Oh, it would be part of it.
 18 Q. Okay. Would those worker protector provisions
 19 reduce all exposures to Roundup for whatever adverse
 20 effect Roundup might cause?
 21 MR. FAYNE: Objection. Calls for speculation.
 22 Beyond the scope of his expert --
 23 A. These worker protection standards were clearly
 24 designed to reduce exposure to the eye, calling for
 25 goggles or a face shield. They were also clearly

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1 designed to reduce exposures through -- through the
 2 hands.
 3 Why is that making so much noise? I'm sorry.
 4 I'm just going to have to let it ring. I'll turn the
 5 thing off. Maybe that will do it. Yeah.
 6 I'm sorry, could we -- could we go back to
 7 where I was --
 8 Q. Sure.
 9 A. -- before I was interrupted by my damn phone,
 10 my phone.
 11 Q. I was asking if you remember the line of
 12 questioning about eye irritation and skin irritation
 13 vis-à-vis the request to put in the worker protection
 14 provisions, and I asked you if those provisions would
 15 also reduce exposures to Roundup regardless of the
 16 adverse effect.
 17 MR. FAYNE: Same objection.
 18 A. Yes, it would. They're designed to reduce
 19 exposure to the eyes, to the hands, to the skin, to the
 20 feet, to the legs, to the back and to the torso.
 21 Q. If you would find Exhibit 16, please, in the
 22 pile. It's the October 1991 peer review of glyphosate.
 23 A. 16?
 24 Q. Yes, sir.
 25 A. All right. I'm there. Making a mess of my

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1 nice pile. All right. Second peer review.
 2 Q. Okay. And on the third page, Bates number 479.
 3 A. I'm there.
 4 Q. There's a section entitled, "Background
 5 information." Do you see that?
 6 A. Yes.
 7 Q. And the -- after the chemical formula for
 8 glyphosate, it reads, "On February 11th, 1985, the
 9 carcinogenic potential of glyphosate was first
 10 considered by a panel (then called the Toxicology Branch
 11 Ad Hoc Committee) comprised of members of the Toxicology
 12 Branch of the Hazard Evaluation Division. The
 13 committee, in a consensus review dated March 4th, 1985,
 14 classified glyphosate as a Group C carcinogen based on
 15 an increased incidence of renal tubular adenomas in male
 16 mice."
 17 Do you see that?
 18 A. Yes.
 19 Q. Did Monsanto ever put on its label that Roundup
 20 or glyphosate had been classified as a Group C
 21 carcinogen?
 22 A. No, it did not.
 23 Q. If you turn to Exhibit 15, which is a
 24 February 24th, 1986, EPA memo.
 25 A. 15. Okay. I have it.

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1 MR. FAYNE: Give me one second. Which one is
 2 that?
 3 MR. KRISTAL: 15.
 4 THE WITNESS: February 24, 1986. It's the --
 5 MR. FAYNE: Yes, I got it now. Thank you.
 6 MR. KRISTAL: On the page that ends Bates
 7 number 5517.
 8 Q. (BY MR. KRISTAL:) The first full paragraph
 9 also gives a little bit of the history of the review of
 10 the database.
 11 A. Correct.
 12 Q. Does it not?
 13 And it reads "The Federal Insecticide Fungicide
 14 and Rodenticide Act (FIFRA) Scientific Advisory Panel
 15 has completed review of the database supporting the
 16 Environmental Protection Agency's decision to classify
 17 glyphosate as a class C possible human carcinogen."
 18 Do you see that?
 19 A. Yes.
 20 Q. Okay. How long did that classification remain
 21 in effect?
 22 A. Through 1991.
 23 Q. Okay. So in between this date of this
 24 classification as possible human carcinogen for the
 25 approximately six and a half years through 1991, was

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1 there ever any information provided by Monsanto on a
 2 Roundup label that glyphosate, the active ingredient,
 3 was classified as a possible human carcinogen?
 4 A. No, there was not.
 5 Q. Have you seen any information communicating
 6 this finding to the public in any way?
 7 A. From Monsanto?
 8 Q. From Monsanto, yes, sir.
 9 A. No, I have not.
 10 Q. Have you seen any advertisements that included
 11 a statement between the time in 1985 when it was
 12 classified by EPA as a possible human carcinogen until
 13 that classification change in 1991 indicating that it
 14 was classified as a possible human carcinogen?
 15 A. No, not.
 16 Q. Any brochures or presentations that stated that
 17 to users of Roundup?
 18 A. No.
 19 Q. Any sort of press release or announcement by
 20 Monsanto to any users of Roundup or the general public?
 21 A. No.
 22 Q. Is this statement of the finding of possible
 23 human carcinogen consistent with your opinion in
 24 paragraph 387 that as of 1985 Monsanto should have added
 25 at least an oncogenicity warning?

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1 A. Correct. And I suggested language that is
 2 similar to the language that they -- that Monsanto
 3 actually put on the Lasso or Alachlor label.
 4 MR. KRISTAL: Okay. I'm going to mark as
 5 hopefully the last document, Exhibit 27.
 6 (Exhibit 27 marked for identification.)
 7 Q. (BY MR. KRISTAL:) Thank you. This is an EPA
 8 document dated March 16th, 2017. The subject is
 9 "Transmission of meeting minutes and final report of the
 10 December 13th through 16th, 2016 FIFRA SAP meeting."
 11 Have you reviewed this document before?
 12 A. Yes, I have.
 13 Q. And did the SAP evaluate the environmental
 14 protection -- strike that.
 15 "SAP" means what?
 16 A. Scientific advisory panel.
 17 Q. Okay. In this report dated March 16th, 2017,
 18 did the scientific advisory panel evaluate the
 19 Environmental Protection Agency's review of technical
 20 glyphosate?
 21 A. Yes. That was the part of the focus of it, and
 22 there was a series of questions placed to the SAP, as is
 23 always done when a scientific advisory panel meeting is
 24 scheduled.
 25 Q. And if you would kindly turn to page 18.

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1 A. Okay. I'm there.
 2 Q. Did the entire SAP panel conclude that the EPA
 3 did not follow its own guidelines --
 4 A. Yes.
 5 Q. -- from 2005?
 6 MR. FAYNE: Objection. Lacks foundation.
 7 A. Yes, they did.
 8 Q. Okay. And the next-to-the-last paragraph
 9 begins "Overall, the panel concluded that the EPA
 10 evaluation does not appear to follow the EPA 2005 cancer
 11 guidelines in several ways, notably for use of
 12 historical control data and statistical testing
 13 requirements."
 14 Is that what the SAP, the scientific advisory
 15 panel, wrote in 2017?
 16 A. Yes, that's what they concluded.
 17 Q. Okay. Does the fact they concluded the EPA did
 18 not follow its own guidelines raise any concern in your
 19 opinion regarding the quality of EPA's assessment?
 20 MR. FAYNE: Object to form.
 21 A. Yes.
 22 Q. Did the EPA ever explain why it didn't follow
 23 its own guidelines?
 24 A. In -- in the September 2016 report, they
 25 present their arguments for the statistical tests that

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1 they relied on and their use of historical control data
 2 leading them to dismiss essentially all of the positive
 3 tumor data in all of the animal bioassays. So they --
 4 in their document, they do their best to justify the
 5 conclusions that they reached based on their review of
 6 the animal bioassay data, and that's what -- that's what
 7 they then asked the SAP to review.
 8 Q. Okay. But did the EPA itself explain why it
 9 didn't follow its own cancer guidelines?
 10 A. No, they didn't mention that fact.
 11 Q. Okay. To your knowledge, is there any
 12 indication that IARC failed to follow its guidelines as
 13 established in its preamble --
 14 A. No.
 15 Q. -- in terms of evaluating the carcinogenicity
 16 of glyphosate?
 17 A. In their report, correct. I -- yes, there was
 18 no indication that they deviated from standard IARC
 19 protocols.
 20 Q. Okay. Did the -- if you turn to page 82 of
 21 Exhibit 27, the SAP --
 22 A. The same one we're in?
 23 Q. Yes.
 24 A. I'm there.
 25 Q. There's a section entitled "Scientific quality

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1 of the agency's carcinogenic potential
 2 characterization."
 3 Do you see that?
 4 A. Yes, I do.
 5 Q. Okay. And it reads in that first paragraph,
 6 "While the issue paper does try to detail the design and
 7 data limitation of each study selected, some of the
 8 panel believed it does not provide sufficient details to
 9 support its conclusions, and this negatively impacts the
 10 scientific quality of the report. In addition, many
 11 panel members felt that some of the discussions of study
 12 design and data limitations provided in the issue paper
 13 introduced and used criteria that were not part of EPA
 14 guidelines for these assessments, and this further
 15 reduces the credibility of the assessment."
 16 Do you agree with the scientific advisory
 17 panel's conclusions here regarding the reduction in the
 18 credibility of the EPA's assessment?
 19 A. Actually, I do agree with it.
 20 Q. Did IARC consider real-world exposure to
 21 glyphosate-based herbicides for its classification of
 22 probable carcinogenicity for glyphosate?
 23 MR. FAYNE: Object to form.
 24 A. They did --
 25 MR. FAYNE: And lacks foundation.

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1 THE WITNESS: They did in the context of their
 2 review of the epidemiological evidence, all of which
 3 involved exposures to glyphosate-based herbicides and
 4 real-world exposures, and they also did in the genotox
 5 assays involving exposed human populations who -- who
 6 were exposed to a glyphosate-based herbicide under
 7 real-world conditions.
 8 Q. (BY MR. KRISTAL:) Have there been any
 9 questions today by Monsanto's counsel or by myself that
 10 leads you to change any of the opinions and conclusions
 11 expressed in your report in this case?
 12 A. No.
 13 MR. KRISTAL: I have no further questions
 14 unless --
 15 MR. FAYNE: We can go off record for five
 16 minutes.
 17 VIDEOGRAPHER: Off the record at 5:39 p.m.
 18 (A brief recess was had.)
 19 VIDEOGRAPHER: Back on the record at 5:47 p.m.
 20 FURTHER EXAMINATION
 21 BY MR. FAYNE:
 22 Q. Dr. Benbrook, you were shown by counsel
 23 Exhibit 25, which relates to the chemical Alachlor; is
 24 that correct?
 25 A. Alachlor.

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1 Q. Alachlor. Thank you. Is that correct?
 2 A. Yes.
 3 MR. FAYNE: I'm going to mark this as
 4 Exhibit --
 5 MR. KRISTAL: 28.
 6 MR. FAYNE: -- 28, which is the EPA R.E.D.
 7 Facts, which I believe is the Registration Eligibility
 8 Decision. Correct?
 9 THE WITNESS: Correct.
 10 (Exhibit 28 marked for identification.)
 11 Q. (BY MR. FAYNE:) Have you seen this document
 12 before, Dr. Benbrook?
 13 A. Yes.
 14 Q. You're aware that in January 1985, EPA
 15 determined that Alachlor met or exceeded the agency's
 16 oncogenicity criteria?
 17 A. They classified Alachlor as a B2 carcinogen.
 18 Is that what you're saying? I can't remember the exact
 19 date that they did it. It's probably in this document.
 20 Q. And B2 carcinogen, that means probable human
 21 carcinogen?
 22 A. Correct.
 23 Q. Did the EPA ever classify glyphosate as a
 24 probable human carcinogen?
 25 A. No.

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1 Q. Were you aware that EPA issued a notice of
 2 intent to cancel the registration of Alachlor?
 3 A. Alachlor.
 4 Q. Alachlor.
 5 A. It's okay.
 6 Q. I'll restate the question.
 7 Were you aware that EPA issued a notice of
 8 intent to cancel the registration of Alachlor?
 9 A. Probably back when I was doing research on corn
 10 herbicides I was aware of it, but I haven't gone back to
 11 review the record in preparation for this deposition.
 12 Q. Were you aware that EPA required a label
 13 statement that Alachlor labels include the label warning
 14 "Restricted use due to oncogenicity, a tumor hazard
 15 warning"?
 16 A. Yes.
 17 Q. Did EPA ever require that glyphosate-based
 18 herbicide labels include a label warning for restricted
 19 use due to oncogenicity?
 20 A. No.
 21 Q. Did EPA ever require that glyphosate-based
 22 herbicide labels include a label warning for a tumor
 23 hazard?
 24 A. No.
 25 Q. Are you aware of any company including a cancer

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1 warning on a pesticide label in a situation other than
 2 when EPA required such a warning?
 3 A. I can't think of one at this late hour. To
 4 say -- to say definitively how many there are, I'd have
 5 to go through and look at a lot of labels.
 6 Q. Sitting here today, you're not aware of any
 7 pesticide company that has voluntarily placed a cancer
 8 warning on its pesticide products without being required
 9 to do so by EPA; correct?
 10 A. I can't -- I can't point to one now.
 11 Q. I'd like to direct you to exhibit -- I believe
 12 it's 21, the International Code of Conduct on Pesticide
 13 Management.
 14 A. Okay.
 15 Q. You were shown this document by counsel;
 16 correct?
 17 A. Correct.
 18 Q. Had you reviewed this document before today?
 19 A. Multiple times.
 20 Q. It's not listed in your reference list;
 21 correct?
 22 A. I -- I don't know if it is or not.
 23 Q. So you can't say one way or the other whether
 24 this document is listed in your reference list?
 25 A. I can't.

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1 Q. Did you rely upon this document in forming your
 2 opinions in this case?
 3 A. This is a -- this is a document that's been
 4 part of pesticide registration and the code of conduct
 5 internationally for 35 years, 40 years. It's -- it's
 6 one of thousands of documents that I've used and has
 7 informed my understanding of pesticide risk and
 8 regulation, stewardship obligations. And I apologize
 9 for not including on my reliance list everything that
 10 I've read in the last 40 years on pesticides.
 11 Q. If you could turn to page 11, Article 4,
 12 Testing of Pesticides.
 13 A. Page 11. Okay. I'm there.
 14 Q. Section 4.1.2 states that, "A pesticide
 15 industry should ensure that such tests are conducted in
 16 accordance with sound scientific and experimental
 17 procedures and the principles of good laboratory and
 18 experimental practice"; correct?
 19 A. Correct.
 20 Q. You're not making any claim that Monsanto
 21 violated good laboratory practices in conducting studies
 22 on glyphosate; correct?
 23 A. No, I have not.
 24 Q. If you turn to 4.1.3, it states that,
 25 "Pesticide industries should make available copies or

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1 summaries of the original reports of such tests for
 2 assessment by responsible governmental authorities in
 3 all countries where the pesticide is to be offered for
 4 sale or use." Do you see that?
 5 A. Yes.
 6 Q. You would agree with me that IARC is not a
 7 governmental authority; correct?
 8 A. Yes.
 9 Q. IARC does not register pesticides; correct?
 10 A. Correct.
 11 Q. So IARC would not fit within the meaning of
 12 this paragraph 4.1.3; correct?
 13 A. Correct.
 14 Q. If you'd turn to 4.1.4, states that, "Pesticide
 15 industries should ensure that the proposed use, label
 16 claims and directions, packages, safety data sheets,
 17 technical literature and advertising truly reflect the
 18 outcome of these scientific tests and assessments";
 19 correct?
 20 A. Correct.
 21 Q. You would agree that the Monsanto label is
 22 consistent with the findings of international regulatory
 23 bodies; correct?
 24 MR. ESFANDIARY: Which ones?
 25 Q. The -- in general, the labels on Monsanto's

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1 formulated products today are consistent with the
 2 findings of international regulatory bodies; correct?
 3 MR. KRISTAL: Objection.
 4 Q. Glyphosate formulations. I apologize. Let me
 5 restate the question.
 6 In general, the find -- the labels on Monsanto
 7 formulations today are consistent with the findings of
 8 international regulatory agencies; correct?
 9 MR. ESFANDIARY: Which ones under the
 10 formulations?
 11 MR. KRISTAL: It's getting late. Don't worry.
 12 Q. (BY MR. FAYNE:) It's getting really late. I
 13 apologize. I'll restate the question for the third time
 14 and this time I'm going to get it correct. I promise.
 15 You would agree with me, Dr. Benbrook, at this
 16 late hour, that the labels on Monsanto's
 17 glyphosate-based formulations are consistent with the
 18 findings of regulatory agencies around the world with
 19 respect to cancer; correct?
 20 A. Yes.
 21 Q. You'd also agree that the California state
 22 agency OEHHA does not have authority to register
 23 pesticides in California; correct?
 24 A. Correct.
 25 Q. Does not have the authority to approve

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1 pesticide labels; correct?
 2 A. Right. That's the California Department of
 3 Food and Agriculture that does that, DPR.
 4 Q. You've testified that you've reviewed this
 5 document many times.
 6 Does anywhere in this publication, which was
 7 issued by the World Health Organization, does it mention
 8 IARC in here?
 9 A. I can't remember. I'd have to scan through it
 10 to give a definitive answer.
 11 Q. You don't recall a statement in this
 12 publication by the World Health Organization that says
 13 that pesticide labels should be consistent with the
 14 findings of IARC; correct?
 15 A. I'd have to look.
 16 Q. So sitting here today, you can't say one way or
 17 the other; correct?
 18 A. That's what I just said.
 19 Q. So fair to say that to your knowledge this
 20 publication requires that labels be consistent with the
 21 findings of regulatory authorities around the world, but
 22 not IARC?
 23 MR. KRISTAL: Objection.
 24 A. This document requires that pesticide labels be
 25 consistent with what pesticide registrants, pesticide

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1 regulators, and the scientific community knows about the
 2 exposures and risks arising from use of pesticides.
 3 Q. You were asked about worker safety language in
 4 the 1986 registration standard document; correct?
 5 A. Yes, I was.
 6 Q. Would you agree that that worker safety
 7 language is not present in the 1993 registration
 8 eligibility document for glyphosate?
 9 A. I would agree with that, yes.
 10 Q. You were shown a document, I believe it's
 11 Exhibit 27, which is a March 16th, 2017, the
 12 transmission of meeting minutes and final --
 13 A. Right.
 14 Q. -- report of the SAP?
 15 A. Yep.
 16 Q. You were asked whether -- I believe you were
 17 asked whether Monsanto -- strike that.
 18 You were asked whether EPA addressed the
 19 comments of the SAP; is that correct?
 20 Perhaps I'm incorrect.
 21 I'm sorry. You were asked in this report, SAP
 22 stated that EPA did not follow its guidelines; correct?
 23 A. Correct.
 24 Q. And you were asked whether EPA ever explained
 25 why it didn't follow its guidelines; correct?

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1 A. I was asked that, yes.
 2 Q. Have you reviewed the document in which EPA
 3 responded to the comments of the SAP?
 4 A. No.
 5 Q. Have you reviewed the 2017 -- December 2017 OPP
 6 report which was revised following the OPP -- the SAP
 7 meeting?
 8 A. Are you talking about the draft human health
 9 risk assessment?
 10 Q. I'm talking about EPA's December 2017 revised
 11 issue paper.
 12 A. Please put it in front of me.
 13 Q. I don't have it here today. This is the
 14 updated version of the 2016 report that we've been
 15 reviewing today.
 16 A. Okay.
 17 Q. Have you -- do you recall if you reviewed that
 18 document?
 19 A. Yes, I have.
 20 Q. Do you recall if that document addresses any of
 21 the issues raised by the SAP?
 22 A. I believe it does, yes.
 23 Q. And you're aware that EPA directly responded to
 24 the SAP in a formal memo; correct?
 25 A. No, I haven't seen that memo.

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1 Q. So you're not aware that they affirmed their
 2 understanding that they disagreed with the SAP with
 3 respect to the guideline comments?
 4 A. I'm not surprised to learn that they would
 5 stick to their guns on this.
 6 Q. Did you review -- strike that.
 7 Did you rely on this SAP document in forming
 8 your opinions in this case?
 9 A. That -- that's the most recent SAP meeting,
 10 and, yes, I was aware of it. I haven't -- I haven't
 11 read the -- I don't think I've ever read it straight
 12 through, but I'm aware of it and aware of the major
 13 findings of it.
 14 Q. Is it cited in your reliance list?
 15 A. I don't know. I can't remember.
 16 Q. I'd like to turn now to some questions that
 17 counsel asked you about Professor Parry.
 18 A. Okay.
 19 Q. And if I could, I would like to direct you to
 20 the EPA reporting requirements. And I apologize, I'm
 21 not sure which exhibit this is. This is the 40 CFR
 22 Part 159, Subpart D.
 23 A. 11.
 24 Q. Thank you. So if I could turn your attention
 25 to Exhibit 11. And as we talked about earlier today, if

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1 you look at Section 159.155.
 2 A. 155?
 3 Q. Yes, 155.
 4 A. Okay.
 5 Q. This section addresses when information must be
 6 submitted. And as we talked about earlier today, it
 7 provides seven categories of reportable information.
 8 Do you see that?
 9 A. Yes.
 10 Q. So now I'd like to turn to 159.158, which is
 11 the section that counsel asked you about.
 12 A. 158. Okay.
 13 Q. Part A states, "Information which is reportable
 14 under this part must be submitted if the registrant" --
 15 and then it goes on to describe who possesses that
 16 information; correct?
 17 A. Yes, sir.
 18 Q. So the information must be reportable under
 19 this part; correct?
 20 A. Information that falls into these categories
 21 has to be reported, yes.
 22 Q. When this -- the regulation says "Information
 23 reportable under this part," do you understand that to
 24 mean Part 159 of the Code of Federal Regulations?
 25 A. Yes.

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1 Q. So the information must first be reportable
 2 under Part 159 of the Code of Federal Regulations;
 3 correct?
 4 A. Correct.
 5 MR. FAYNE: Going to mark one last exhibit
 6 today and then I'm done, I promise.
 7 MR. KRISTAL: I've heard promises before at
 8 depositions.
 9 MR. FAYNE: Number 28?
 10 MR. KRISTAL: I think so. You marked the last
 11 one which was the --
 12 MR. FAYNE: Yeah.
 13 THE WITNESS: The EPA, the SAP report, and it
 14 is --
 15 MR. KRISTAL: 27.
 16 THE WITNESS: -- it's 27.
 17 Q. (BY MR. FAYNE:) So I'm marking as Exhibit 28
 18 an e-mail chain related to a meeting with
 19 Professor Parry, and this is cited in paragraph 492 of
 20 your report.
 21 A. Okay. Just a second. And do I need to get my
 22 report out, too, do you think, or are we just going to
 23 talk about this document?
 24 Q. No, we're just going to talk about this
 25 document.

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1 A. Okay. Shoot.
 2 Q. So you're aware -- I think you testified
 3 earlier that you were not aware of any written reports
 4 from Dr. Parry after August of 1999; correct?
 5 A. I would have to go back and check the dates of
 6 the various Parry reports. As what became clear
 7 earlier, there's a series of them.
 8 It's not exactly clear to me which ones came at
 9 the same time, which ones are two parts of one report.
 10 And the record -- it's confusing to track the flow of
 11 Parry's reports. I'd have to go back and look at it in
 12 detail to give you a definitive answer.
 13 Q. But you're aware that Monsanto and Dr. Parry
 14 continued to communicate after August 1999; correct?
 15 A. I am aware of that, yes.
 16 Q. And I'll represent to you that you stated in
 17 your report that there was a meeting in February 2001
 18 between Dr. Parry and Monsanto; correct?
 19 A. Correct.
 20 Q. And you cite this document, which is an
 21 e-mail -- if you turn to the second page, it's an e-mail
 22 from ██████████ to Donna Farmer, William Heydens,
 23 ██████████ and copying William Graham dated
 24 February 16th, 2001?
 25 A. Right. Oh, yes, I remember this one now, yeah.

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1 Q. So you've seen this document before; correct?
 2 A. Yeah.
 3 Q. And this is summarizing a meeting between
 4 Monsanto and Dr. Parry --
 5 A. Right.
 6 Q. -- that occurred in February 2001; correct?
 7 A. Correct.
 8 Q. So starting with the first paragraph, second
 9 sentence, it states, "The presentation of the results of
 10 the" Monsanto -- or I should say "MON 35050 study
 11 changed the mood because it clarified certain effects
 12 found in the Bolognesi and Peluso papers."
 13 Did I read that correctly?
 14 A. You read it correctly, yes.
 15 Q. Do you know what the MON 35050 study is?
 16 A. It's a study on that numbered Monsanto
 17 formulation. I believe that's original Roundup.
 18 Q. That is the study that was designed to
 19 replicate and explain the findings of the Bolognesi and
 20 Peluso --
 21 A. Yes.
 22 Q. -- papers; correct?
 23 A. Yeah. One of -- one of several.
 24 Q. If you go to the "Results" section of the
 25 summary, it states that --

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1 A. Let me -- I want to read the intervening
 2 paragraphs.
 3 Q. Sure.
 4 A. Okay.
 5 Q. So the "Results" section states that,
 6 "Acceptance that glyphosate is not genotoxic."
 7 A. That's what it says.
 8 Q. "Broad agreement that genotoxic results in some
 9 studies with surfactants arose due to oxidative damage
 10 rather than direct genotoxicity"; correct?
 11 A. Correct. That's what it says.
 12 Q. And then going down to the last bullet in that
 13 section, "No longer requested any studies on the final
 14 formulation."
 15 Did I read that correctly?
 16 A. Yes.
 17 Q. As of February 2001, Dr. Parry agreed that
 18 glyphosate was not genotoxic; correct?
 19 MR. KRISTAL: Objection.
 20 A. I'm not willing to accept ██████████ summary of
 21 this meeting as accurately reflecting Parry's views.
 22 Q. As of February 2001, Dr. ██████████ reported from
 23 a meeting that Dr. Parry had accepted that glyphosate is
 24 not genotoxic; correct?
 25 MR. KRISTAL: Objection.

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1 A. [REDACTED] is reporting that his
 2 interpretation of what Dr. Parry said. And, in fact, if
 3 Dr. Parry had total changed his opinions about
 4 glyphosate and glyphosate-based herbicides and believed
 5 that they were not genotoxic, I'm quite sure that
 6 Monsanto would have continued to use him and make him a
 7 party of their third-party network, which they did not
 8 do.

9 So I do not believe that there was a
 10 substantial change in Dr. Parry's assessment of the
 11 studies that he reviewed discussed during this meeting.

12 Q. Are you aware of whether Monsanto continued to
 13 work with Dr. Parry after this February 2001 meeting?

14 A. I think there were -- I think perhaps even a
 15 whole 'nother year, there were some communications back
 16 and forth, yes. I don't know if you would -- if that
 17 would classify as "work with."

18 I think there was -- there was concern
 19 expressed about what Parry, independent of his
 20 association with Monsanto might say and do about what he
 21 had learned in the course of this consulting assignment
 22 that he had done with Monsanto. There's several
 23 messages that discuss what happens next in their
 24 association with Dr. Parry.

25 Q. You testified that Monsanto would have

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1 continued to use him. How do you know that Monsanto did
 2 not continue to use him?

3 Is that based on your review of the e-mails
 4 produced in this litigation?

5 A. Yes.

6 Q. And those e-mails stated that they were no
 7 longer using Dr. Parry as of what date?

8 A. I don't -- I don't remember, but certainly by
 9 2003, there was -- I'm almost sure there was
 10 no -- essentially no more communication, at least not
 11 that I've seen in the record.

12 Q. You're not aware of any publication by
 13 Dr. Parry suggesting that glyphosate or glyphosate-based
 14 formulations were genotoxic; correct?

15 A. In peer-reviewed -- a peer-reviewed journal?
 16 No.

17 Q. Correct.

18 A. No, I'm not aware of any.

19 Q. Other than the three reports in 1999 that
 20 Dr. Parry produced, are you aware of any written study
 21 or publication in which Dr. Parry concluded that
 22 glyphosate was genotoxic?

23 A. I'm not aware of any. It could exist.

24 Q. After this February 2001 meeting between
 25 Monsanto and Dr. Parry, are you aware of any statement

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1 or communication from Dr. Parry indicating that he
 2 believed glyphosate was genotoxic?

3 A. I -- no, I don't believe I am. I would have
 4 to, again, look -- look back at the MONGLY documents
 5 that memorialize the interactions between Monsanto and
 6 Dr. Parry to give a definitive answer to that question.

7 Q. Same answer for glyphosate-based formulations;
 8 correct?

9 A. Yes.

10 Q. You stated that you're not willing to accept
 11 Dr. [REDACTED] interpretation of this meeting; correct?

12 A. Correct.

13 Q. Do you have any reason to believe that his
 14 summary of the meeting was inaccurate?

15 A. It -- it's impossible to, based on this cryptic
 16 summary of the meeting that occurred, to understand
 17 exactly what was discussed, what date it was presented,
 18 what aspects of studies Dr. Parry expressed a view on
 19 that [REDACTED] interpreted was different from the view
 20 that Parry expressed in his earlier reports. It's just
 21 -- it's not possible to render that judgment based on
 22 this cursory summary of the meeting.

23 Q. So it's not possible to review the e-mail and
 24 understand exactly what was said or what people's intent
 25 or motivation was; correct?

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1 MR. KRISTAL: Objection.

2 A. Correct.

3 Q. Under the "Actions" section, it states,
 4 "Complete the MON 35050 study with an intraperitoneal
 5 injection of the MON" M-O-N, "35035 formulation minus
 6 glyphosate."

7 Do you see that?

8 A. Yes.

9 Q. Do you know whether Monsanto completed that
 10 study?

11 A. I don't. I don't know if they did or not.

12 Q. You don't know one way or the other?

13 A. Right. Correct.

14 MR. FAYNE: No further questions.

15 MR. KRISTAL: For housekeeping purposes, I have
 16 two minutes of questions.

17 I believe you marked Exhibit -- the Alachlor
 18 EPA R.E.D. Facts as 28, so the e-mail that you've just
 19 been discussing should be 29, so I'll put 29 on that.

20 MR. FAYNE: Thank you. I appreciate that.
 21 (Exhibit 29 marked for identification.)

22 MR. KRISTAL: And I'm assuming 28 made its way
 23 onto the Alachlor, and if it hadn't, we can do as well.

24 MR. FAYNE: All right. Actually, have you
 25 marked that version that you have that's stapled?

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1 MR. KRISTAL: That's mine. We'll make sure for
 2 housekeeping.
 3 MR. FAYNE: Okay.
 4 MR. KRISTAL: We don't have to delay
 5 Dr. Benbrook while we do the housekeeping.
 6 MR. FAYNE: All right. Thank you.
 7 MR. KRISTAL: Sure.
 8 THE WITNESS: I'm quite proud of my together
 9 pile here. I've got 27, 28.
 10 MR. KRISTAL: 28 is already on there.
 11 THE WITNESS: 29, and that's bingo.
 12 (Exhibit 23 marked for identification.)
 13 MR. KRISTAL: Real quick. I marked as
 14 Exhibit 23 the printout from the Monsanto website that
 15 had the link to the International Code of Conduct on
 16 Pesticide Management, and --
 17 THE WITNESS: That's the missing one.
 18 MR. KRISTAL: Right.
 19 MR. FAYNE: Do you mind if I take a quick look
 20 at it?
 21 MR. KRISTAL: Sure.
 22 MR. FAYNE: Whenever you're ready.
 23 MR. KRISTAL: And Exhibit 23, just before the
 24 link, says, "We subscribe to international stewardship
 25 standards including the International Code of Conduct on

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1 Pesticide Management." And I want to --
 2 THE WITNESS: It goes there when it's ready.
 3 MR. KRISTAL: Yep. And I want to follow on
 4 Exhibit 21 just in the same section that Mr. Fayne had
 5 asked you questions.
 6 FURTHER EXAMINATION
 7 BY MR. KRISTAL:
 8 Q. Under Article 4, Testing of Pesticides,
 9 Mr. Fayne asked you about Section 4.1.2 in terms of good
 10 laboratory practices; correct?
 11 A. Correct.
 12 Q. All right. 4.1 says, and 4.1.1 say, "Pesticide
 13 industries should ensure that each pesticide and
 14 pesticide product is adequately and effectively tested
 15 by recognized procedures and test methods so as to fully
 16 evaluate its inherent physical, chemical or biological
 17 properties, efficacy, behavior, fate, hazard and risk
 18 with regard to the various anticipated uses and
 19 conditions in regions or countries of use."
 20 Do you see that?
 21 A. Yes, I do.
 22 Q. When it says, "ensure that each pesticide and
 23 pesticide product," is there a difference between the
 24 pesticide as an active ingredient and the pesticide
 25 product itself?

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1 A. Yes. The pesticide refers to the testing of
 2 the active ingredient, and pesticide product refers to
 3 the formulated or end-use product.
 4 Q. Okay. So the pesticide, the active ingredient
 5 for Roundup is what?
 6 A. Glyphosate.
 7 Q. And the pesticide product is what?
 8 A. Roundup and the various brands of Roundup.
 9 Q. Okay. And has Monsanto ever done any
 10 carcinogenicity testing on Roundup itself, the pesticide
 11 product?
 12 A. No, it has not.
 13 Q. Okay. And is that a violation of this industry
 14 standard that Monsanto itself has adopted?
 15 MR. FAYNE: Objection. Calls for a legal
 16 conclusion.
 17 A. It falls short of full compliance with it,
 18 especially given all of the reasons to do it.
 19 Q. And very briefly, Exhibit 28, the Alachlor EPA
 20 registration facts. It was mentioned that eventually
 21 Alachlor was classified as a B2 carcinogen; right?
 22 A. Correct.
 23 Q. Okay. But in the history here it says, a
 24 registration standard was issued for Alachlor on
 25 November 20th, 1984, dropping down, "The Registration

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1 Standard (1) stated that Alachlor was classified as an
 2 oncogen." Do you see that?
 3 A. Yes.
 4 Q. And so that was November 20th, 1984, and we saw
 5 from the 1985 --
 6 A. '5.
 7 Q. -- chemical guide that, very shortly after the
 8 finding that it was an oncogen, Monsanto put the warning
 9 on the Alachlor products; correct?
 10 A. Correct.
 11 MR. KRISTAL: No further questions.
 12 MR. FAYNE: Let's take a one-minute break and
 13 then I might have one last question and I think we're --
 14 THE WITNESS: I think I'm done. Okay? I mean,
 15 this can go on all night.
 16 MR. FAYNE: Well, it can.
 17 THE WITNESS: Let's do the question.
 18 MR. FAYNE: Okay.
 19 MR. KRISTAL: Do you have a question?
 20 MR. FAYNE: Yeah, we're still on the record.
 21 FURTHER EXAMINATION
 22 BY MR. FAYNE:
 23 Q. You testified previously that testing -- doing
 24 long-term cancer studies on a formulated product is not
 25 industry standard; correct?

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1 MR. KRISTAL: Objection.
 2 A. Correct.
 3 So that's your question? You asked -- you said
 4 you were going to ask one question.
 5 MR. KRISTAL: Yeah. We're beyond seven hours
 6 anyway.
 7 MR. ESFANDIARY: Counsel --
 8 VIDEOGRAPHER: We can go off the record and I
 9 can let you know.
 10 MR. FAYNE: That's fine.
 11 THE WITNESS: Are we done?
 12 MR. FAYNE: Yes, we can be done.
 13 THE WITNESS: Thank you.
 14 VIDEOGRAPHER: This concludes the videotaped
 15 deposition of Charles Benbrook, Ph.D. The time is now
 16 6:18 p.m. We're going off the record.
 17 (Discussion had off the record.)
 18 (Off the video record.)
 19 MR. KRISTAL: Earlier I had said that I was
 20 going to mark as Exhibit 24 the linked International
 21 Code of Conduct from Exhibit 23, the Monsanto website.
 22 We agreed that 24 was the 2014 -- well, was going to be
 23 marked as 24, was the 2014 international code, which was
 24 the same as Exhibit 21.
 25 MR. FAYNE: So I --

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1 MR. KRISTAL: 24 does not get marked.
 2 MR. FAYNE: And I would just say that we did
 3 not agree that they're necessarily the same document. I
 4 understand that you printed out the linked version,
 5 but...
 6 MR. KRISTAL: Well, it had the same title. It
 7 had the same author. The --
 8 MR. FAYNE: It had a different cover page, so
 9 as far as I'm concerned, not the same document.
 10 MR. KRISTAL: Right.
 11 MR. FAYNE: I haven't reviewed them in detail
 12 to be able to --
 13 MR. KRISTAL: Okay.
 14 MR. FAYNE: -- agree to that characterization.
 15 MR. KRISTAL: Well, everybody can go onto the
 16 Monsanto website link.
 17 MR. ESFANDIARY: I can send you the link later.
 18 You can authenticate it later.
 19 MR. FAYNE: I'm sure. All I'm saying is I'm
 20 not agreeing --
 21 MR. KRISTAL: Would you agree to look whenever
 22 you get a chance and then let us know if you agree so we
 23 don't have to go back and print it and put a number 24
 24 on it? We can print it out after the deposition.
 25 MR. FAYNE: I thought that's what you were

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1 going to -- I thought that's what's you're going to do.
 2 MR. KRISTAL: That's fine. We'll do that,
 3 then. It's no big deal.
 4 We will provide to the court reporter an
 5 electronic copy of 24, and we'll provide that to you as
 6 well.
 7 MR. FAYNE: That would be great. Thank you.
 8 MR. KRISTAL: Okay. Fair enough.
 9 (Whereupon, the deposition of CHARLES
 10 BENBROOK, Ph.D., was concluded at 6:20 p.m.)
 11 (Exhibit 24 marked for identification.)
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1
 2
 3 CERTIFICATE
 4
 5 I, AMY J. BROWN, Certified Court Reporter in and
 6 for the States of Idaho and Washington, Notary Public in
 7 and for the State of Idaho, do hereby certify:
 8 That the foregoing deposition of CHARLES
 9 BENBROOK, Ph.D., was taken December 28, 2018, at the
 10 time and place herein stated;
 11 That the witness was first duly sworn to testify
 12 to the truth, the whole truth, and nothing but the truth
 13 in the within-entitled cause;
 14 That the foregoing is a true and correct
 15 transcription of my shorthand notes of said deposition
 16 transcribed by me or under my direction;
 17 I further certify that I am not interested in
 18 the outcome of said action, nor connected with, nor
 19 related to, any of the parties of said action or to
 20 their respective counsel.
 21 IN WITNESS WHEREOF, I have hereunto set my hand
 22 and seal this 29th day of December, 2018.
 23
 24
 25

AMY J. BROWN, RMR, CRR
 Notary Public
 My commission expires: 9/24/24

INSTRUCTIONS TO WITNESS

1
2
3 Please read your deposition
4 over carefully and make any necessary
5 corrections. You should state the reason
6 in the appropriate space on the errata
7 sheet for any corrections that are made.
8 After doing so, please sign
9 the errata sheet and date it.
10 You are signing same subject
11 to the changes you have noted on the
12 errata sheet, which will be attached to
13 your deposition.
14 It is imperative that you
15 return the original errata sheet to the
16 deposing attorney within thirty (30) days
17 of receipt of the deposition transcript
18 by you. If you fail to do so, the
19 deposition transcript may be deemed to be
20 accurate and may be used in court.
21
22
23
24
25

ACKNOWLEDGMENT OF DEPONENT

1
2
3
4 I, _____, do
5 hereby certify that I have read the
6 foregoing pages, and that the same is
7 a correct transcription of the answers
8 given by me to the questions therein
9 propounded, except for the corrections or
10 changes in form or substance, if any,
11 noted in the attached Errata Sheet.
12
13
14

15 _____
16 CHARLES BENBROOK, Ph.D. DATE
17

18 Subscribed and sworn
19 to before me this
20 _____ day of _____, 20____.
21 My commission expires: _____
22

22 _____
23 Notary Public
24
25

ERRATA

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