

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

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IN RE: ROUNDUP PRODUCTS) MDL No. 2741
LIABILITY LITIGATION)
) Case No.
)
) 16-md-02741-VC
THIS DOCUMENT RELATES TO ALL)
CASES)
)

CONFIDENTIAL - SUBJECT TO PROTECTIVE ORDER

VIDEOTAPED DEPOSITION OF AARON EARL BLAIR, Ph.D.
WASHINGTON, D.C.
MONDAY, MARCH 20, 2017
8:59 A.M.

Reported by: Leslie A. Todd

1 Deposition of AARON EARL BLAIR, Ph.D., held at the
2 offices of:

3

4

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14 Pursuant to notice, before Leslie Anne Todd, Court
15 Reporter and Notary Public in and for the District of
16 Columbia, who officiated in administering the oath to
17 the witness.

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1 P R O C E E D I N G S

2 -----

3 THE VIDEOGRAPHER: We are now on the
4 record. My name is Daniel Holmstock. I'm the
5 videographer for Golkow Technologies. Today's date
6 is March 20th, 2017, and the time is 8:59 a.m.

7 This deposition is being held at the law
8 offices of Hollingsworth, LLP, at 1350 I Street,
9 Northwest, in Washington, D.C., in the matter of
10 In Re Roundup Products Liability Litigation, MDL
11 No. 2741. The case is pending before the United
12 States District Court of the Northern District of
13 California.

14 Our deponent today is Dr. Aaron Blair.

15 Counsel, would you please identify
16 yourselves and whom you represent.

17 MR. MILLER: Yes, good morning. I'm
18 Michael Miller, and I represent the plaintiffs,
19 together with my law partner Nancy Miller, law
20 partner Jeff Travers, and an attorney from Denver
21 Kathryn Forgie.

22 MS. FORGIE: With Andrus Wagstaff.

23 MR. LASKER: David?

24 MR. GREENE: I'm sorry. David Greene. I
25 represent Dr. Blair.

1 MR. HOLLINGSWORTH: Joe Hollingsworth. I
2 represent Monsanto,

3 MS. SHIMADA: Elyse Shimada. I represent
4 Monsanto.

5 MR. LASKER: Eric Lasker for Monsanto.

6 THE VIDEOGRAPHER: Anybody via telephone,
7 please identify.

8 MS. WAGSTAFF: Good morning, everyone.
9 This is Aimee Wagstaff from Andrus Wagstaff, and I
10 represent the plaintiffs in this matter.

11 THE VIDEOGRAPHER: Anybody else via
12 telephone?

13 Okay. Our reporter is Leslie A. Todd,
14 who will now administer the oath.

15 WHEREUPON,

16 AARON EARL BLAIR, Ph.D.,
17 called as a witness, and having been first duly sworn,
18 was examined and testified as follows:

19 DIRECT EXAMINATION

20 BY MR. MILLER:

21 Q Good morning, Dr. Blair.

22 A And good morning.

23 MR. LASKER: Mike, as you said, just
24 before we get started, a statement on the record.
25 This is Eric Lasker for Monsanto.

1 Based upon discussions we had with
2 Dr. Blair's counsel when this deposition was
3 subpoenaed and -- subpoenaed by plaintiffs, it is our
4 understanding that Dr. Blair has been produced solely
5 as a fact witness to provide testimony about his
6 factual knowledge and his experiences in connection
7 with issues for which he will be questioned, and not
8 to offer any expert opinions in this litigation. And
9 we have prepared for the deposition accordingly.

10 MR. MILLER: Well, and we agree to the
11 extent that we -- we have not retained Dr. Blair as
12 an expert. I don't believe Monsanto has retained
13 Dr. Blair as an expert, but as we get into the
14 deposition, and we both know Dr. Blair was part of a
15 committee that formulated opinions, and we'll only
16 ask about opinions that were formulated within that
17 process and not for expert opinion as he sits here
18 today. We certainly are not asking that.

19 So let's get going and see if we can
20 complete our day.

21 MR. LASKER: As questions are asked, we
22 will object or not according to our understanding.

23 MR. MILLER: As the rules allow.

24 BY MR. MILLER:

25 Q All right. Good morning, Dr. Blair.

1 A Good morning.

2 Q How are you, sir?

3 A Okay.

4 Q Good. What -- would you please state
5 your name on the record.

6 A Aaron Earl Blair.

7 Q All right, sir. And Aaron Earl Blair,
8 and you're a doctor?

9 A Ph.D.

10 Q Ph.D. You've got -- I'm going to start
11 and go through a little bit of your credentials, if I
12 may, sir.

13 A Sure.

14 Q Okay. You graduated in 1965 with a
15 degree in biology from Kansas Wesleyan University?

16 A Yes.

17 Q Master of Science degree in '67 from
18 North Carolina State University?

19 A Yes.

20 Q And a Ph.D. in genetics at North Carolina
21 State University?

22 A Yes.

23 Q And then in 1976, you got a MPH. What is
24 an MPH?

25 A Masters in Public Health.

1 Q And that's -- your CV says epidemiology?

2 A Correct.

3 Q Okay. And what is epidemiology?

4 A The study of causes and distribution of
5 diseases.

6 Q Have you -- have you been professionally
7 since 1976 studying the causes of diseases?

8 A Yes.

9 Q And explain it to me, if you would.
10 Where and how have you been studying the causes of
11 diseases since 1976?

12 A The study of disease in human
13 populations, evaluating various factors that might be
14 related to the initiation or etiology of those
15 diseases.

16 Q As the -- you say you've spent your
17 professional life with this doctorate degree studying
18 the causes of diseases. Have you studied the causes
19 of cancer?

20 A Yes.

21 Q And within the broad field of studying
22 the causes of cancer, have you studied the causes of
23 non-Hodgkin's lymphoma?

24 A Yes.

25 Q I'm a lay person. Tell me what is

1 non-Hodgkin's lymphoma.

2 A Lymphatic and hematopoietic tumors have a
3 variety of different specific diseases. One is
4 Hodgkin's disease, you've probably heard of. It's a
5 lymphoma. Non-Hodgkin's lymphoma is all the
6 lymphomas that aren't Hodgkin's disease.

7 Q So non-Hodgkin's lymphoma is a form of
8 cancer. You have to answer --

9 A Yes.

10 Q And non-Hodgkin's lymphoma is a form of
11 cancer in the blood?

12 A Yes.

13 Q So any kind of blood cancer that is not
14 Hodgkin's lymphoma would be called non-Hodgkin's
15 lymphoma?

16 A No. It is --

17 Q All right. Explain to me why I'm --

18 A -- any type of lymphoma --

19 Q I see.

20 A -- that isn't Hodgkin's disease is
21 non-Hodgkin's lymphoma.

22 Q So there can be other blood cancers such
23 as leukemia?

24 A Yes.

25 Q I understand. Thank you for that

1 correction.

2 Now, it sounds like you spend an awful
3 lot of time at the National Cancer Institute. Is
4 that right?

5 A Yes.

6 Q What is the National Cancer Institute?

7 A It is one of the institutes, the National
8 Institutes of Health devoted to studying cancer.

9 Q And you started there in 1976?

10 A Yes.

11 Q I think we're about the same age. How
12 many years ago was that?

13 A Quite a few.

14 Q Yeah. Thanks for clearing that up.

15 And how long did you stay there, from
16 1976 until when? Are you still there or are you
17 retired or --

18 A I am retired now, but I have an emeritus
19 position, which means I go in a couple of days a week
20 and do what I've always done. I just don't get paid.

21 Q Sounds like an interesting promotion,
22 Dr. Blair.

23 All right. So you started there in 1976.
24 You were a staff fellow for the Environmental
25 Epidemiology Branch at the National Cancer Institute?

1 A Correct.

2 Q Went on 1978 to '82, became the acting
3 chief of the occupational study section of the
4 Environmental Epidemiology Branch, National Cancer
5 Institute?

6 A Yes.

7 Q Describe for us what it is you are doing
8 there and --

9 A Studying various sorts of exposures that
10 occur in occupations and to see if they are related
11 to cancer.

12 Q Would farming be one of those occupations
13 that you've studied for the causes of cancer?

14 A Yes.

15 Q Wouldn't that be true for your entire
16 profession -- professional career?

17 A That was one of the early things I
18 started doing was studies of farmers.

19 Q Did there come a time when you saw an
20 increase in cancers in farmers?

21 A Yes.

22 Q All right. Let's go on then. You became
23 the chief of the occupational study section in 1982,
24 right?

25 A Yes.

1 Q Okay. Remained the chief for, and I will
2 do this math, 14 years until 1996?

3 A Sounds right.

4 Q Okay, sir. And I have -- you have a copy
5 of your CV there. I have a copy here. If you want
6 to look at it, feel free.

7 And what I will do, I will mark as
8 Exhibit 1 a copy of your CV or curriculum vitae,
9 okay?

10 (Blair Exhibit No. 1 was marked for
11 identification.)

12 BY MR. MILLER:

13 Q And hand it to you. And you can let me
14 know if this is -- all right. Thank you, sir.

15 MR. MILLER: A copy for counsel.

16 MR. LASKER: Thank you. Yeah, do that.

17 BY MR. MILLER:

18 Q Is this your CV, sir?

19 A Yes.

20 Q Okay. So we were down here, we were
21 looking at some of your professions. You were at the
22 National Cancer Institute after receiving your
23 Ph.D. --

24 MR. LASKER: Mike, for the record, are
25 these highlights your highlights on the document?

1 MR. MILLER: Yes. Yes. Yes, they are.

2 Thanks for asking.

3 MR. LASKER: That's the document that you
4 will be using for the deposition?

5 MR. MILLER: I -- I think we're allowed
6 to do that, if I recall, under the rules.

7 MR. LASKER: Okay, that's fine.

8 MR. MILLER: Yeah. I'm just highlighting
9 to aid the jury along the way.

10 BY MR. MILLER:

11 Q These highlights aren't yours, are they,
12 Dr. Blair?

13 A No.

14 Q Okay. It's all important, isn't it?
15 Your whole body of work, do you feel like it's
16 important?

17 A Oh. Yes, sure.

18 Q All right. So after being the chief for
19 14 years at the Occupation and Environmental
20 Epidemiology Branch, you went on to become in 2004 a
21 senior investigator. Please tell us what that means.

22 A It means I stepped down as head of the
23 unit and just retained a position at the National
24 Cancer Institute, and that is a senior position.

25 Q Okay. And then you retired from

1 full-time work there in 2007.

2 A Yes.

3 Q And have been working for free as a
4 professor emeritus there ever since.

5 A Yes.

6 Q Very good. All right.

7 And the reason I'm asking about your
8 background, sir, there came a time when this
9 organization asked you to do some scientific work for
10 them. Is that fair?

11 MR. LASKER: Objection to form.

12 THE WITNESS: Yes.

13 BY MR. MILLER:

14 Q Who is WHO?

15 A World Health Organization.

16 Q Okay. So the World Health Organization,
17 what did they ask you to do? What did they ask you
18 to do, sir?

19 A Are you asking about a particular time
20 or --

21 Q You know, that's a fair question. When
22 was the first time the World Health Organization
23 contacted Aaron Blair and asked him to perform some
24 professional services?

25 A I -- I don't --

1 MR. LASKER: Objection to form.

2 You can answer.

3 THE WITNESS: I don't actually remember
4 the earliest year that it was, but I have served on
5 various World Health Organization groups over the
6 years.

7 BY MR. MILLER:

8 Q Could you just let the jury know some of
9 those groups that you served at the request and for
10 the World Health Organization.

11 A Well, the main one is the International
12 Agency for Research on Cancer, which is part of the
13 World Health Organization.

14 Q Okay. And is that also referred to as
15 IARC?

16 A Correct.

17 Q Okay. So -- and that stands for
18 International Association --

19 A Agency.

20 Q I'm sorry. International Agency for the
21 Research on Cancer?

22 A Correct.

23 Q And that is an organization which is part
24 of the World Health Organization.

25 A Yes.

1 Q And how many times have you served as an
2 IARC volunteer?

3 A You know, I don't actually remember
4 the -- the number. Seven maybe.

5 Q Okay. And I'm going now to your CV to
6 page 3, and it shows that you served on IARC as early
7 as 1985.

8 Does that sound about right, Dr. Blair?

9 A Sounds about right.

10 Q Okay. And you were at -- you were
11 involved in an IARC monograph. I guess we will stop
12 there. What's a monograph?

13 A Just a publication, a book.

14 Q Okay. So it's an International Agency
15 for the Research of Cancer book on the evaluation of
16 carcinogenic -- I guess that's cancer?

17 A Yes.

18 Q -- of cancer risks to humans.

19 A Yes.

20 Q And you -- Volume 35, these books come
21 out from the World Health Organization in volumes, I
22 guess?

23 A Yes.

24 Q Okay. So Volume 35 was probably one of
25 the first ones that you worked on.

1 A Yes.

2 Q So off and on, as requested by World
3 Health Organization, it would be fair to say you've
4 been involved in working with them since 1985, right?

5 A Yes.

6 MR. LASKER: Objection to form.

7 BY MR. MILLER:

8 Q Or about -- is that 32 years? I'm real
9 bad with math. Sound about right?

10 A Sounds right.

11 Q Okay. All right. So that was Volume 35.
12 Did there come a time when you were asked
13 to be involved with the World Health Organization,
14 the International Association of Cancer, to what has
15 now become Volume 112 of the monographs?

16 A Yes.

17 MR. LASKER: Objection to form.

18 BY MR. MILLER:

19 Q And I'm going to put a copy under the
20 highlighter -- and that is my highlighting, so we all
21 know -- I'll tell you what I will do, I will use a
22 non-highlighted copy and a highlighter to work with.

23 (Blair Exhibit No. 2 was marked for
24 identification.)

25 BY MR. MILLER:

1 Q And a copy for you, Doctor.

2 MR. MILLER: And a copy for counsel.

3 Q All right. Here, Doctor.

4 A Thank you.

5 Q All right. So what we have here, can you
6 identify this document, which is Exhibit 2, please?

7 A Well, it is one of the monographs.

8 Q Okay. And I just want to ask you a few
9 questions about the front page of this document. So
10 it says -- again, we've been talking about it, but
11 it's a World Health Organization, right?

12 A Yes.

13 Q And it's the International Agency for
14 Research on Cancer.

15 A Yes.

16 Q Also known as IARC, right?

17 A Yes.

18 Q All right. Now, this is a preamble.
19 What is a preamble?

20 A Sort of the beginning discussion of what
21 follows in the monograph.

22 Q Okay. And they meet in a place called
23 Lyon, France?

24 A Correct.

25 Q All right. And this preamble was written

1 in 2006. Have you reviewed this before?

2 A Yes. Not -- not recently.

3 Q Well, I know, and I'm not -- it's not a
4 test, but I just want to go over a couple of things
5 with you.

6 And will go, if you would, sir, to the
7 first page of the preamble, and it says here that the
8 IARC was established in two -- in 1965.

9 Is that your understanding?

10 A Yes.

11 Q All right. It says: Through the IARC"
12 -- I'm sorry, I will quote exactly.

13 "Through the monographs program, IARC
14 seeks to identify the causes of human cancer."

15 That's true, isn't it, sir?

16 A Yes.

17 Q Okay. And some terms, so the jury and I
18 can understand them. In this preamble they tell us,
19 the World Health Organization, that a cancer hazard
20 is an agent that is capable of causing cancer under
21 some circumstances. While a cancer risk is an
22 estimate of carcinogen -- carcinogenic effects
23 expected from exposure to a cancer hazard.

24 I mean, is that what we should
25 understand?

1 A Yes.

2 Q Okay. All right. And there's in the
3 preamble a discussion of the selection of agents for
4 review by IARC, and I want to ask you about it.

5 It says: "Agents are selected for
6 review" -- is that for review to see if they cause
7 cancer?

8 A Yes.

9 Q -- "on the basis of two main criteria:
10 There is evidence of human exposure, and there is
11 some evidence or suspicion of carcinogenicity."

12 Is that your understanding, Dr. Blair?

13 A Yes.

14 Q Okay. And IARC has in this preamble a
15 discussion of what they will review as they consider
16 these issues, right, sir?

17 A Yes.

18 Q Okay. And it talks about with regard to
19 epidemiological studies -- now, first, let's stop
20 there.

21 What is an epidemiological study?

22 A It's a study of -- in humans to evaluate
23 risk of disease or risk factors.

24 Q To find out if some agent may cause some
25 condition?

1 A Right.

2 Q Okay.

3 MR. LASKER: Object to form.

4 BY MR. MILLER:

5 Q What is a cancer bioassay?

6 A It's an experimental study. Usually it
7 means studies in animals.

8 Q Okay. What do we mean by "mechanistic
9 and other relevant data"?

10 A What are the biologic processes that
11 might lead from an exposure to development of cancer.

12 Q Yes, sir.

13 "Only reports that have been published or
14 accepted for publication in openly available
15 scientific literature are reviewed."

16 Is that true, sir?

17 A Yes.

18 Q And why is that true? Why -- why does
19 IARC only review those publications that have been
20 published in available scientific literature or have
21 been accepted for publication?

22 MR. LASKER: Objection to form.

23 BY MR. MILLER:

24 Q You can answer.

25 A Because these materials are then

1 available to anyone.

2 Q And IARC also reviews those exposure
3 data?

4 A Yes.

5 Q And exposure data means how are humans
6 exposed to that agent, right?

7 A Yes.

8 Q Okay. And IARC extends invitations to
9 scientists around the world to participate in the
10 creation of a monograph for a book, right?

11 A Yes.

12 Q And it -- in this preamble it tells us:
13 "Before an invitation is extended, each potential
14 applicant participant, including the IARC
15 Secretariat, completes a WHO declaration of interest
16 to report financial interests, employment, and
17 consulting, and individual and institutional research
18 support related to the subject of the meeting."

19 Is that your understanding?

20 A Yes.

21 Q So before these folks are invited to be
22 on this IARC panel, they have to declare their
23 interests?

24 A Yes.

25 MR. LASKER: Objection to form.

1 BY MR. MILLER:

2 Q And it says in this monograph preamble
3 that a working group -- and I want to ask you, what
4 is a working group?

5 A It's the group of people invited to
6 perform this activity.

7 Q And the working group meets at IARC for
8 seven to eight days to discuss and finalize the text
9 and to formulate the evaluation.

10 Is that your experience?

11 A Roughly that number of days, yes.

12 Q Excuse me. All right. Page 8. I want
13 to ask you about this if I can.

14 It says: "Regarding occurrence and
15 exposure, data that indicate the extent of past and
16 present human exposure, the sources of exposure, the
17 people most likely to be exposed, and the factors
18 that contribute to exposure are reported."

19 Is that your experience, sir?

20 A Yes.

21 Q And one more sentence here. It says,
22 quote: Information is presented on the range of
23 human exposure, including occupational and
24 environmental exposure.

25 Occupational exposure I guess would mean

1 being exposed to the agent at work?

2 MR. LASKER: Objection to form.

3 THE WITNESS: Yes.

4 BY MR. MILLER:

5 Q And environmental exposure means what,
6 sir?

7 A Usually not exposed at work. In other
8 ways.

9 Q All right. And I'm -- I just want to ask
10 you a few more questions. Page 9, there's a whole
11 section, and I'm not going to read it, but that IARC
12 considers the quality of studies considered, right?

13 A Yes.

14 Q Okay. And then on page 10, IARC
15 considers meta-analysis?

16 A Yes.

17 Q Now, could you tell the jury what is a
18 meta-analysis?

19 A It is a quantitative or statistical way
20 of summing up results from several studies.

21 Q Okay. And does IARC not only consider
22 meta-analysis that are available in the public
23 literature, but does IARC in fact do their own
24 meta-analysis?

25 A Sometimes.

1 Q Okay. And we're going to get to the IARC
2 monograph on Roundup in a minute, but now I will jump
3 out of turn and ask, did they -- did IARC working
4 group do a meta-analysis on Roundup --

5 MR. LASKER: Objection to form.

6 BY MR. MILLER:

7 Q -- and the epidemiology concerning the
8 issue of Roundup in non-Hodgkin's lymphoma?

9 A I'm not sure I remember.

10 Q All right. We will take a look in a
11 minute then. Thank you.

12 And does IARC also review pooled
13 analysis?

14 A Yes.

15 Q Okay. All right. And IARC looks at
16 temporal effects, right, sir?

17 A Yes.

18 Q So they analyze both the detailed
19 analysis of both relative and absolute risk in
20 relation to temporal variables. Now, that's a
21 mouthful.

22 Detailed analysis of both relative and
23 absolute risk. What is a relative risk?

24 A It would be the calculation of a rate in
25 one group compared to a rate in another.

1 Q I see. Perhaps a group who's been
2 exposed to an agent compared to a group that has not
3 been exposed to an agent?

4 A Yes.

5 Q Okay. And an absolute risk would --
6 would be what, sir?

7 A The rate of occurrence of disease in a
8 group.

9 Q Yes, sir. They consider age at first
10 exposure, time since first exposure, duration of
11 exposure, cumulative exposure, peak exposure, when
12 appropriate and time sense -- cessation of exposures
13 are reviewed and summarized when available. Is that
14 right, sir?

15 A Yes.

16 Q All right. Going, if we would, to
17 page 11 in the preamble for IARC, it tells us that
18 they use a criteria to establish causality, right,
19 sir?

20 MR. LASKER: Objection to form.

21 BY MR. MILLER:

22 Q You can answer.

23 A Yes.

24 Q And in their criteria for cruality --
25 causality, excuse me, in making its judgment, the

1 working group considers several criteria for
2 causality. Hill, 1965.

3 Do you see that, sir?

4 A Yes.

5 Q And that is Sir Bradford Hill?

6 A Yes.

7 Q Okay. It says in the preamble for IARC:
8 "If the risk increases with exposure, this is
9 considered a strong indication of causality."

10 Is that true, sir?

11 A Yes.

12 Q IARC also considers studies of cancer in
13 experimental animals?

14 A Yes.

15 Q Page 15. In the preamble they discuss
16 that IARC considers mechanistic and other relevant
17 data. Is that right, sir?

18 A Yes.

19 Q Okay. And that would include
20 toxicokinetic data.

21 Now, what does toxicokinetic data mean,
22 Dr. Blair?

23 A Sort of the processes of chemicals
24 interacting with human systems.

25 Q Okay, sir. And they consider data on

1 mechanisms of carcinogens?

2 A Yes.

3 Q And what is that?

4 A Various pathways appear to lead to
5 carcinogenicity.

6 Q And after -- even before this seven- to
7 nine-day working group meeting in France, does the
8 working group review materials in the time before
9 that?

10 MR. LASKER: Object -- objection to form.

11 THE WITNESS: The individuals on the
12 working group --

13 MR. MILLER: Yes.

14 THE WITNESS: -- review materials before
15 then.

16 BY MR. MILLER:

17 Q Okay. And for what period of time
18 approximately do individuals in the working group
19 review material?

20 A A couple of months. Three months. It's
21 a while.

22 Q Okay. And then after they review, there
23 is a determination made whether the agent being
24 reviewed is carcinogenic or not. Is that fair?

25 MR. LASKER: Objection to form.

1 THE WITNESS: Yes.

2 BY MR. MILLER:

3 Q And there are different categories.

4 There's 1, 2A, 2B, 3, that sort of thing?

5 A Yes.

6 Q Okay. Category 2A is the agent is
7 probably carcinogenic to humans, right?

8 A Yes.

9 Q And carcinogenic means causes cancer,
10 right?

11 A Yes.

12 Q Okay. So -- and we're going to talk
13 about it in more detail, but you were selected for
14 the working group that looked at Roundup, right?

15 MR. LASKER: Objection to form.

16 BY MR. MILLER:

17 Q You can answer.

18 A Yes.

19 Q And your group -- I think there were 17
20 scientists on that group?

21 A Sounds about right.

22 Q Yeah, I understand. We'll look at it in
23 a sec.

24 But that group decided that Roundup and
25 glyphosate was probably carcinogenic to humans,

1 right?

2 MR. LASKER: Objection to form.

3 THE WITNESS: Yes.

4 BY MR. MILLER:

5 Q You have to answer again. 2A, "yes" is
6 the answer?

7 A Yes.

8 Q Okay. All right. And so we're going to
9 look at how that process was played out and see if we
10 can understand it.

11 A Okay.

12 Q I want to look at Exhibit 3, which is --
13 one moment.

14 Okay. Exhibit 3, Dr. Blair, is a list of
15 participants for the IARC Monograph on Evaluation of
16 Carcinogenic Risk to Humans, which included a review
17 of glyphosate, okay? I have a copy for you and a
18 copy for counsel. So it will be Exhibit 3.

19 Here.

20 MR. MILLER: All right. Counsel.

21 (Blair Exhibit No. 3 was marked for
22 identification.)

23 BY MR. MILLER:

24 Q All right, Dr. Blair. This is a list of
25 participants for the IARC Monograph on the Evaluation

1 of Carcinogenic Risk to Humans, right, sir?

2 A Yes.

3 Q So it's Volume 112 of these monographs
4 we've been talking about, right?

5 A Yes.

6 Q And one of the things that -- one of the
7 agents that IARC Volume 112 looked at was glyphosate,
8 right?

9 A Yes.

10 Q And the meeting occurred in Lyon, France,
11 March 3rd through 10th, 2015, right?

12 A Yes.

13 Q And the list of participants -- I would
14 like to go over it for -- if I could, included Aaron
15 Blair, National Cancer Institute, retired --

16 That's you, right, sir?

17 A Yes.

18 Q -- from the United States of America, and
19 you were the overall chair of the group, weren't you?

20 A Yes.

21 Q Okay. How much did they pay you for
22 that?

23 A We're not paid.

24 Q It's a volunteer assignment, isn't it?

25 A Yes.

1 Q So you reviewed all these materials for
2 months. Right?

3 MR. LASKER: Objection to form.

4 THE WITNESS: Yes.

5 BY MR. MILLER:

6 Q You flew to France.

7 A Yes.

8 Q Spent seven to nine days -- I'm sorry, it
9 looks like seven days reviewing these materials with
10 these other scientists, and you volunteered and did
11 it all for free.

12 A Other than travel expenses.

13 Q Okay. They paid your airfare. Okay.
14 Thank you.

15 All right. Let's look at -- did all 17
16 of these people do this as volunteers?

17 A Yes.

18 Q Okay. I want to look at some of them.

19 Also from America, Gloria Jahnke. Am I
20 pronouncing that right?

21 A I'm not sure.

22 Q She's from the National Institute of
23 Environmental Health Sciences of the United States?

24 A Yeah.

25 Q Do you know her?

1 A No.

2 Q Okay.

3 A Other than through this meeting, I mean.

4 Q Yes, I understand. You spent seven days
5 with her.

6 Charles Jameson from CWJ Consulting, LLC,
7 United States. He is a subgroup chair in cancer in
8 experimental animals.

9 Do you see that, sir?

10 A Yeah.

11 Q So how many subgroups are there or were
12 there in this particular group?

13 A Four.

14 Q Okay. And there were people from the
15 Environmental Protection Agency who volunteered and
16 served on this panel that concluded that glyphosate
17 was a probable cause of human cancer.

18 MR. LASKER: Objection to form.

19 THE WITNESS: Yes.

20 BY MR. MILLER:

21 Q One of them is Matthew Martin, right?

22 A Yes.

23 Q And Matthew Martin is -- was employed in
24 2015 by the United States Environmental Protection
25 Agency, right?

1 MR. LASKER: Objection to form.

2 THE WITNESS: Yes.

3 (Counsel conferring.)

4 BY MR. MILLER:

5 Q Oh, I skipped somebody. Peter -- I'll
6 never pronounce this right, Peter Egeghy?

7 A I don't know.

8 Q I don't know either. From the United
9 States Environmental Protection Agency, unable to
10 attend.

11 Now, would he participate either by phone
12 or not have participated, or how does that work?

13 A Well, I -- I think everyone is there.

14 Q Okay. All right. So if you're not
15 there, you don't vote, or how does that work, do you
16 know?

17 A I don't know of an example where someone
18 was not there and voted.

19 Q Okay. From Canada, John McLaughlin,
20 University of Toronto.

21 A Yes.

22 Q Do you know him?

23 A Yes.

24 Q I mean before the meeting.

25 A Yes.

1 Q Okay. How do you know him?

2 A We're both epidemiologists doing the same
3 work.

4 Q Yes, sir. All right.

5 And from Mississippi State University,
6 Matthew K. Ross. My wife wouldn't let me -- I would
7 be in trouble if I didn't bring out Mississippi State
8 University.

9 Do you know him?

10 A Yes.

11 Q All right. And what sort of professional
12 is he?

13 A He's a toxicologist, a bioassay person.

14 Q And from Texas A&M, Ivan Rusyn, he was a
15 sub -- subgroup chair in mechanism.

16 Did you know him professionally before?

17 A Yes.

18 Q Do you know any of these people socially?

19 A A few.

20 Q Okay. Who?

21 A Andrea 't Mannetje; John McLaughlin. If
22 "socially" means sometimes I see them not strictly in
23 a professional meeting.

24 Q Have dinner after a meeting or something?

25 A Occasionally.

1 Q Yeah, sure.

2 All right. From California Environmental
3 Protection Agency, Lauren Zeise. Do you know what
4 her profession is?

5 A No.

6 Q Okay. So those were the members.

7 Now, these people were the ones that
8 ultimately voted that Roundup or glyphosate was a
9 probable human carcinogen for non-Hodgkin's lymphoma.

10 Was the vote unanimous?

11 MR. LASKER: Objection to form.

12 BY MR. MILLER:

13 Q You can answer.

14 A I actually don't remember for sure. I
15 think so.

16 I just want to say one thing --

17 Q Please do.

18 A -- these are the people who voted.
19 You've just underlined a whole bunch of them.

20 Q Yes, sir.

21 A They all voted.

22 Q Oh, I understand, sir. Yes, sir. I
23 wasn't trying to suggest otherwise. Everyone on here
24 voted, right?

25 A Yes.

1 Q And you think it was unanimous, but
2 you're not a hundred percent sure. Is that fair?

3 A Yeah.

4 Q Now, I want to ask you, an invited
5 specialist, what is an invited specialist?

6 A It may be that someone brings special
7 expertise so it would be of value to the working
8 group.

9 Q And the World Health Organization decided
10 that there was an invited specialist they wanted to
11 invite for this issue of glyphosate. Is that fair?

12 MR. LASKER: Objection to form.

13 THE WITNESS: Or for the other pesticides
14 being evaluated.

15 BY MR. MILLER:

16 Q Sure.

17 A I don't know why they did it.

18 Q Yes, sir, I understand. You didn't make
19 the invitation?

20 A I did not make the invitation.

21 Q But an invitation was extended to
22 Christopher Portier, who was from the Agency for
23 Toxic Substances and Disease Registry in the United
24 States.

25 A Yes.

1 Q Do you know Dr. Portier?

2 A Yes.

3 Q Okay. Also present was a gentleman by
4 the name of Jesudosh -- I'm sorry if I'm pronouncing
5 it wrong -- Jesudosh Rowland from the United States
6 Environmental Protection Agency.

7 Do you see that, sir?

8 A Yes.

9 Q Do you know him?

10 A No. You know, he was at the meeting. I
11 probably met him --

12 Q Right, I understand.

13 A -- at the meeting, but -- yeah.

14 Q I understand. And there were observers
15 at the meeting. Now, what's the function of an
16 observer?

17 A That usually means they are sort of
18 stakeholders in the issue being evaluated.

19 Q Okay.

20 A A few who were invited to come.

21 Q And the Monsanto Company was allowed to
22 have an observer at the meeting, weren't they, sir?

23 A Yeah.

24 Q That was a Dr. Thomas Sorahan, right?

25 A Yes.

1 Q Do you know Dr. Sorahan?

2 A I do.

3 Q And did he -- was he allowed to speak up
4 at the meeting?

5 A Yes.

6 Q Okay. Did he object to or complain about
7 the unanimous decision to declare glyphosate a
8 probable human carcinogen for non-Hodgkin's lymphoma?

9 MR. LASKER: Objection to form.

10 THE WITNESS: I don't think I remember
11 this for sure, but typically invited specialists are
12 asked to comment on specific things, not on the
13 formal evaluation.

14 BY MR. MILLER:

15 Q I understand. All right.

16 (Counsel conferring.)

17 BY MR. MILLER:

18 Q All right. So after this selection of
19 these 17 people IARC put together, you were the
20 chairman. After months of review, a seven-day
21 meeting, there was a report issued. Is that fair to
22 say?

23 A Yes.

24 (Blair Exhibit No. 4 was marked for
25 identification.)

1 BY MR. MILLER:

2 Q Okay. Let's take a look at what I
3 believe to be the IARC report for glyphosate. And I
4 marked it as Exhibit 4, and I have a copy for you and
5 counsel. And I put 4 on it so you know when somebody
6 goes back to it later, you're going to know what
7 number it is.

8 MR. MILLER: Counsel, here you go.

9 BY MR. MILLER:

10 Q This is a report from IARC for
11 glyphosate?

12 A Okay. Yes.

13 Q Yes? Okay.

14 And glyphosate is the active ingredient
15 in Roundup?

16 A Yes, sir.

17 Q Okay. And I want to ask you a few
18 questions about the report, spend a little time going
19 over it.

20 I'm not going to ask you about the
21 molecular structure. I didn't do very well in high
22 school chemistry. You'll forgive me.

23 If you would go to page 4.

24 The report says that: "Glyphosate is
25 widely used for household weed control throughout the

1 world. In the USA, glyphosate was consistently
2 ranked as the second most commonly used pesticide
3 (after 2,4-D) in the home and garden market sector
4 between 2001 and 2007, with an annual use of 2,000 to
5 4,000 tonnes." And you cite the authority for that
6 comment.

7 That was your understanding after
8 researching the matter?

9 A That's my understanding.

10 MR. LASKER: Objection to form. Lacks
11 foundation.

12 BY MR. MILLER:

13 Q All right. I want to go to page 45 of
14 this report.

15 IARC studied obviously the drug in humans
16 and studied it in exposed humans. That's a fair
17 statement?

18 A Yes.

19 MR. LASKER: Objection to form.

20 BY MR. MILLER:

21 Q Okay. You looked at the study, one of --
22 was it about a thousand studies you guys looked at in
23 this process?

24 MR. LASKER: Objection to form.

25 THE WITNESS: I don't actually know what

1 the total number across all types of studies is. It
2 was a lot, but I -- I don't know if that's the right
3 number or not.

4 BY MR. MILLER:

5 Q Can you give me an estimate?

6 A Not really because I'm on the
7 epidemiology panel.

8 Q Okay.

9 A And I sort of look at it. I mean the
10 monograph lists all of them --

11 Q Right.

12 A -- that we looked at.

13 Q Right, right. Okay. So you not only
14 chaired the entire panel but you subchaired the
15 epidemiology section.

16 A I was on the epidemiology --

17 Q I'm sorry. Well, was there a subchair?

18 A There was.

19 Q Who?

20 A I don't remember.

21 Q Okay, fair enough.

22 The report says: "The baseline frequency
23 of binucleated cells with micronuclei" -- excuse me
24 -- "was significantly higher in subjects from the
25 three regions where there had been aerial spraying

1 with glyphosate formulations."

2 Do you remember reading the Bolognesi
3 study?

4 MR. LASKER: Objection to form. And
5 objection to using this witness just as a basis for
6 reading in portions of the document and not having a
7 set of questions with respect to that.

8 BY MR. MILLER:

9 Q You can answer.

10 A This is a toxicologic study. I'm an
11 epidemiologist. Different subgroups evaluate
12 different components. I'm really familiar with
13 epidemiology, not so much the other.

14 Q That's fair. All right. All right.
15 Thank you.

16 Let's look at the epidemiology then. I
17 think that probably would make more sense. There's a
18 table in the report with the epidemiology on it,
19 isn't there?

20 A Yes.

21 (Counsel conferring.)

22 BY MR. MILLER:

23 Q Okay. Going to page 78 of your report,
24 "Cancer in Humans." We're on page 78. Do you see
25 this, Doctor?

1 It says: "There is limited evidence in
2 humans for the carcinogenicity of glyphosate. A
3 positive association has been observed for
4 non-Hodgkin's lymphoma."

5 What does a "positive association" mean,
6 sir?

7 MR. LASKER: Objection to form.

8 BY MR. MILLER:

9 Q Yeah, you can answer. I'm sorry.

10 A It means there were studies that showed
11 an excess risk for people exposed.

12 Q And that would include the
13 epidemiological studies that were done.

14 A Yes.

15 MR. LASKER: Objection to form.

16 BY MR. MILLER:

17 Q And we'll take a look at a lot of them,
18 but all right.

19 Your report goes on to say: "There is
20 strong evidence that exposure to glyphosate or
21 glyphosate-based formulations is genotoxic based on
22 studies in humans in vitro and studies in
23 experimental animals."

24 That's what your 17-expert committee
25 found?

1 MR. LASKER: Objection to form.

2 THE WITNESS: Yes.

3 BY MR. MILLER:

4 Q You also concluded: "There is strong
5 evidence that glyphosate and glyphosate-based
6 formulations, and aminomethylphosphonic acid can act
7 to induce oxidative stress based on studies in
8 experimental animals and in studies in humans in
9 vitro."

10 Now, that's a mouthful, so I've got to
11 ask you, why did you mention aminomethylphosphonic
12 acid?

13 MR. LASKER: Objection to form.

14 THE WITNESS: Again, this comes from the
15 subgroups with a discipline that I'm not as
16 knowledgeable about.

17 BY MR. MILLER:

18 Q Okay.

19 A And I think this is a breakdown product,
20 but I'm not sure.

21 Q I understand. Well, we'll pass that off
22 to people that study the breakdown products. Okay.

23 MR. LASKER: Objection to form to that
24 last comment.

25 BY MR. MILLER:

1 Q To be clear, though, before we leave the
2 "Conclusion" section, this report is in March of
3 2015, right?

4 A Yes, sir.

5 Q And "the positive association has been
6 observed for non-Hodgkin's lymphoma," IARC has not
7 retracted that statement in any way, shape or form as
8 we sit here in March of 2017?

9 A Not to my knowledge.

10 Q And there's been requests by Monsanto
11 Corporation to retract that, hasn't there?

12 MR. LASKER: Objection to form.

13 THE WITNESS: I understand that to be
14 true.

15 BY MR. MILLER:

16 Q Now, let's look at some of the
17 epidemiology in the -- all right. There we go.

18 Table 2.2 is a table about the
19 epidemiology -- well, let's look at it. And it's
20 quite a long one here.

21 Okay. Table 2.2 is -- I got it from
22 here -- is case-control studies of leukemia and
23 lymphoma and exposure to glyphosate, right, sir?

24 A Yes.

25 Q Okay. Now, I'm not going to ask about

1 leukemia. But the first study in 1992, Cantor did
2 not show any statistical significance, right, sir?

3 A Correct.

4 Q Explain to a lay person what "statistical
5 significance" means.

6 A In statistical analyses, there is a
7 phenomenon known as noise, which means if you do
8 different studies, you don't get exactly the same
9 response. And statistical approaches are used to
10 decide if it is sort of outside the bounds of what
11 you would anticipate to occur being just from noise.

12 Q Okay. So whenever -- explain to us -- in
13 parentheses here, this 0.7-1.9, what does that tell
14 us?

15 A The estimate of 1.1 says that is an
16 estimate of elevated risk from this exposure. It's
17 like a 10 percent increase, but it's not very big.
18 And these other two numbers, 0.7 to 1.9, said we
19 have -- I think in this case it's a 95 percent
20 confidence interval that the real true estimate is
21 somewhere between those two numbers.

22 Q Yes, sir. So then moving on in time, the
23 next study we see on your chart for non-Hodgkin's
24 lymphoma is a study by De Roos in 2003, right?

25 A Yeah.

1 Q And what Dr. De Roos and others did --
2 and this is an epidemiological report from a
3 peer-reviewed journal?

4 A Yes.

5 Q What do we mean by "a peer-reviewed
6 journal"?

7 A You send a manuscript to a scientific
8 journal, and they send it out if they think it might
9 be worthy of fitting in that journal to other
10 scientists to review it and make comments about its
11 quality.

12 Q Okay. And Dr. De Roos and others in this
13 peer-reviewed journal studied people who were exposed
14 to glyphosate in Nebraska, Iowa, Minnesota, Kansas,
15 from the period 1979 to 1986, right?

16 A Yes.

17 Q And what they found was that there was
18 over a doubling of the risk of non-Hodgkin's lymphoma
19 for people who had been exposed to glyphosate, right?

20 MR. LASKER: Objection to form.

21 THE WITNESS: Yes.

22 BY MR. MILLER:

23 Q And because our numbers here, 1.1 to 4.0
24 are higher than 1.0, they've taken chance out of it
25 at 95 percent, right?

1 MR. LASKER: Objection to form.

2 THE WITNESS: Yes.

3 BY MR. MILLER:

4 Q Is it -- is this finding of a doubling of
5 the risk of non-Hodgkin's lymphoma, is it
6 statistically significant?

7 A Yes.

8 MR. LASKER: Objection to form.

9 BY MR. MILLER:

10 Q Is this one of the pieces of evidence
11 upon which your committee based their opinion there
12 was a positive association between exposure to
13 glyphosate and non-Hodgkin's lymphoma?

14 A Yes.

15 (Counsel conferring.)

16 BY MR. MILLER:

17 Q All right. So I'm going to go -- the Lee
18 study was also about non-Hodgkin's lymphoma. Is that
19 right, sir?

20 A Yes.

21 Q And it showed an increased risk of 40
22 percent but could not rule out chance. Is that fair
23 or am I misinterpreting it?

24 A Correct.

25 Q Okay.

1 MR. LASKER: Objection to form to the
2 last question.

3 BY MR. MILLER:

4 Q And then in 2001, there was a large
5 study -- well, strike that.

6 There was a study from Canada called the
7 McDuffie study, right, sir?

8 A Yes.

9 Q Would you describe it as -- for a
10 case-control study -- a large study or not?

11 A Yes.

12 Q And they examined people who had been
13 exposed to glyphosate from 1991 to 1994, right, sir?

14 A They examined cases who occurred in that
15 time period, I think, who might have been exposed.

16 Q Yes, sir. And they did exposure,
17 unexposed. They did people that had been exposed for
18 zero to two days and for people who had been exposed
19 to greater than two days in that time period, right?

20 A Yes.

21 Q And for people that had been exposed to
22 zero to two days, they found no increased risk of
23 non-Hodgkin's lymphoma, right?

24 MR. LASKER: Objection.

25 THE WITNESS: That actually is the

1 reference population.

2 BY MR. MILLER:

3 Q That's the reference population?

4 A So it's set at 1.0.

5 Q Oh, I see. Of course. All right.

6 But for people that were exposed for
7 greater than two days, they found a doubling of the
8 risk of non-Hodgkin's lymphoma from exposure to
9 Roundup or glyphosate?

10 A Yes.

11 MR. LASKER: Objection to form.

12 BY MR. MILLER:

13 Q And they found that was statistically
14 significant, that is to say it did not occur by
15 chance?

16 MR. LASKER: Objection to form.

17 THE WITNESS: Outside the realm of
18 chance.

19 BY MR. MILLER:

20 Q Yes, sir.

21 A Yes.

22 Q Okay. How would you pronounce this,
23 Karunanayake? I'm sorry. I don't know how to
24 pronounce that.

25 A Okay. I'm sorry, I can't quite read it.

1 Q K-A-R-U-N-A-N-A-Y-A-K-E.

2 A I don't know.

3 Q Okay. He did a study out of Canada in --
4 for exposure period from '91 to '94, published in
5 2012, did not find a statistically significant
6 increased risk in his study. Is that fair?

7 A Yes.

8 Q The next year, 2013, Kachuri, et al, in
9 six provinces in Canada, studying multiple myeloma.
10 Is multiple myeloma a form of
11 non-Hodgkin's lymphoma?

12 A No. Non-Hodgkin's lymphomas had
13 different definitions over time. When this study was
14 done, it was not a form of non-Hodgkin's lymphoma.

15 Q All right, sir.

16 All right. Excuse me. Continuing on
17 your table of epidemiological studies, we have
18 Hardell and Eriksson in 1999 do a study on
19 non-Hodgkin's lymphoma from northern and middle
20 Sweden during a three-year period, '87 to '90.

21 Do you see that, sir?

22 A Yes.

23 Q Now, they found under ever used
24 glyphosate univariate analysis -- what is a
25 univariate analysis?

1 A Just looking at the relationship in a
2 statistical analysis that includes glyphosate and not
3 much of anything else.

4 Q All right. And what is an ever
5 glyphosate multivariate analysis?

6 A They have included other factors that
7 they think might be related to this cancer.

8 Q I see.

9 And what they concluded was, just using
10 glyphosate, they had a doubling of the risk, but it
11 was not statistically significant. Is that a fair
12 assessment?

13 MR. LASKER: Objection to form.

14 THE WITNESS: Yes.

15 BY MR. MILLER:

16 Q And if ever used glyphosate as a
17 multivariate analysis, they had an over 500 percent
18 increased risk, but again, not statistically
19 significant, right?

20 MR. LASKER: Objection to form.

21 THE WITNESS: Correct.

22 BY MR. MILLER:

23 Q So then we go to the Hardell study in
24 Sweden, 2002 -- and all these are peer reviewed or
25 they wouldn't be in your table, right?

1 A Yes.

2 Q And what they do, they take Sweden, four
3 northern counties, and they take studying
4 non-Hodgkin's lymphoma and Hodgkin's lymphoma, and
5 what they conclude -- I'm sorry. They don't. I've
6 just been corrected.

7 Non-Hodgkin's lymphoma and hairy cell,
8 right, which is a form of non-Hodgkin's --

9 A Hairy cell leukemia.

10 Q Yes, which is a form of non-Hodgkin's
11 lymphoma?

12 A Depends on the time frame, but I think it
13 was at that time. I'm not sure.

14 Q Okay. And they find a 300 percent
15 increased risk statistically significant?

16 MR. LASKER: Objection to form.

17 THE WITNESS: Yes.

18 BY MR. MILLER:

19 Q Okay. Meaning that they've eliminated
20 chance to the 95 percent.

21 A Yes.

22 Q Okay.

23 MR. LASKER: Objection to form.

24 BY MR. MILLER:

25 Q All right. So now we go to the next page

1 of your table where you report on the study of
2 Eriksson, an epidemiological study on non-Hodgkin's
3 lymphoma published in 2008, and exposure to any
4 glyphosate, they've got a doubling of the risk of
5 non-Hodgkin's lymphoma statistically significant,
6 right?

7 MR. LASKER: Objection to form.

8 THE WITNESS: Yes.

9 MR. LASKER: You're just going to read
10 from one of those? There's two.

11 BY MR. MILLER:

12 Q They go on to look at days of use. Do
13 you see that, sir? Less than ten days use?

14 A Yes.

15 Q Greater than ten days use?

16 A Yes.

17 Q So for less than ten days use, they have
18 a nonstatistically significant increased risk of
19 69 percent, right?

20 MR. LASKER: Objection to form.

21 THE WITNESS: Yes.

22 (Interruption in the proceedings.)

23 MR. MILLER: Do you need to take a break?

24 THE WITNESS: No.

25 MR. LASKER: And for the record, for this

1 whole line of questioning, we make an objection to
2 testimony of studies based upon a table as opposed to
3 the studies themselves. So objection based on lack
4 of foundation as well.

5 BY MR. MILLER:

6 Q Okay. So for the Eriksson study, less
7 than ten days use, 69 percent increased risk, not
8 statistically significant, correct?

9 A Correct.

10 MR. LASKER: Objection to form.

11 BY MR. MILLER:

12 Q Well, tell us what the findings were for
13 less than ten days use from the Eriksson study.

14 A So you just read what the findings were.

15 Q He's objected to me reading. He wants
16 you to explain it.

17 A Oh. There was a 1.69 relative risk
18 calculated for less than 10 years use that was not
19 statistically significant.

20 Q For ten days use.

21 A For less than ten days use, it was not
22 statistically significant.

23 Q All right, sir.

24 And for greater than ten days per year
25 use, what did the Eriksson study reveal about

1 non-Hodgkin's lymphoma after exposure to ten days of
2 glyphosate?

3 MR. LASKER: Objection to form.

4 THE WITNESS: For this category of use,
5 it was -- the relative risk was 2.36, which was
6 statistically significant.

7 BY MR. MILLER:

8 Q And 2.36 would be how much of an increase
9 in risk?

10 MR. LASKER: Objection to form.

11 THE WITNESS: It's better if you just say
12 the relative risk. It's the relative risk is 2.36.

13 BY MR. MILLER:

14 Q Okay. Would it be --

15 A It's more than doubling.

16 Q It's more than doubling. All right.

17 And what is dose response?

18 A As level of exposure goes up, the risk or
19 relative risk goes up.

20 Q Did we see dose response here in the
21 Eriksson study for non-Hodgkin's lymphoma in exposure
22 to Roundup?

23 MR. LASKER: Objection to form, calls for
24 expert opinion.

25 THE WITNESS: Yes.

1 BY MR. MILLER:

2 Q And the preamble to IARC said dose
3 response was strong evidence of causality; is that
4 true?

5 A Yes.

6 Q All right. Let's go to lymphatic -- I'm
7 sorry, lymphocytic lymphoma B-cell. Do you see that?

8 A Yes.

9 Q Exposure to glyphosate?

10 A Yes.

11 MR. LASKER: Objection to form.

12 BY MR. MILLER:

13 Q Tell us what the findings were by
14 Eriksson.

15 A For this subgroup of lymphoma, the
16 relative risk was 3.35, which was statistically
17 significant, because the confidence interval, the
18 lower level was greater than 1.0.

19 Q And I know you don't like to put a
20 percentage on it, but would that be a 300 percent
21 increased risk?

22 MR. LASKER: Objection to form.

23 THE WITNESS: Roughly.

24 BY MR. MILLER:

25 Q Yes, sir. Okay.

1 And unspecified non-Hodgkin's lymphoma
2 and exposure to glyphosate, what were the findings,
3 and were they statistically significant?

4 A The relative risk was 5.63, and the
5 confidence interval did not include 1.0, so it was
6 statistically significant.

7 Q Would that be synonymous with a five
8 times risk?

9 A Roughly.

10 MR. LASKER: Objection to form.
11 Objection to the selective questioning regarding the
12 table.

13 BY MR. MILLER:

14 Q There was a study called Orsi, but is it
15 fair to say none of his findings were statistically
16 significant; is that accurate?

17 A I'm looking. None were statistically
18 significant on this page.

19 Q Study from the Czech Republic, the Cocco
20 study on the issue of B-cell lymphoma. And, first,
21 B-cell lymphoma is a form of non-Hodgkin's lymphoma?

22 A Yes.

23 Q And this study, what were the findings of
24 this study, Dr. Blair?

25 A The relative risk was 3.1, and the

1 confidence interval was less -- the lower amount was
2 less than 1.0, so it was not statistically
3 significant.

4 Q And even though it was not statistically
5 significant, does this inform us or aid us in
6 reaching the conclusions the panel was charged with
7 or -- or not? How does that play out?

8 A All studies inform us.

9 Q Okay. There was -- we've looked at the
10 big thick hundred-and-some-page report of IARC on
11 glyphosate. There was also a shorter summary of the
12 findings published in Lancet. Do you remember that?

13 A Yes.

14 Q And Lancet is a peer-reviewed journal?

15 A Yes.

16 Q And would it be fair to say -- or you
17 tell me, is Lancet a prestigious medical journal?

18 A Lancet Oncology is a prestigious journal.

19 Q Yeah.

20 (Blair Exhibit No. 5 was marked for
21 identification.)

22 BY MR. MILLER:

23 Q And so I want to look at the IARC
24 findings published in Lancet Oncology, and I've
25 marked them as Exhibit 5. And I got a copy for you

1 and a copy for counsel.

2 Do you want to take a break?

3 A No.

4 Q Okay. All right. So what we're looking
5 at, Doctor, is from the Lancet Oncology, right?

6 A Yes.

7 Q And it was published hard copy May 2015;
8 published online, it tells us, March 20th, 2015.

9 Do you see that?

10 A Yes.

11 Q Okay. And it's carcinogenicity of
12 several things, which we're not involved in, but one
13 of them we are, and that's glyphosate, right?

14 A Yes.

15 Q Okay. And it tells us there were 17
16 experts from 11 countries who met at the
17 International Agency for the Research on Cancer to
18 assess the carcinogenicity of these products,
19 including glyphosate, right?

20 A Correct.

21 Q Okay. There was only one cancer that the
22 committee found to be associated with glyphosate,
23 right?

24 MR. LASKER: Objection to form.

25 THE WITNESS: Yes.

1 BY MR. MILLER:

2 Q And that's non-Hodgkin's lymphoma?

3 A Correct.

4 Q And the mechanistic evidence was what,
5 sir?

6 MR. LASKER: Objection to form. Lacks
7 foundation.

8 BY MR. MILLER:

9 Q I'm sorry. You can answer. He objects,
10 but you can answer.

11 A That it was genotoxic and had another
12 possible effect with oxidative stress.

13 Q Did you help author this article in
14 Lancet?

15 A Yes.

16 Q Okay. You say here: "Glyphosate" -- and
17 I'm on page 2 -- "is a broad spectrum" -- there it is
18 right there -- "broad spectrum herbicide currently
19 with the highest production volume of all herbicides.
20 It is used in more than 750 different products for
21 agriculture, forestry and home application. Its use
22 has increased sharply with the development of
23 genetically modified glyphosate-resistant crop
24 varieties."

25 And that was part of the research that

1 you folks developed in preparing this report?

2 MR. LASKER: Objection to form.

3 BY MR. MILLER:

4 Q You can answer.

5 A It was part of the evidence we reviewed.

6 Q Okay. And we've just been talking about
7 them, but I want -- "case-control studies" -- those
8 are the studies that we just talked about, right?

9 A Yes.

10 Q Okay. "-- of occupation exposure in the
11 United States, Canada, and Sweden, reported increased
12 risk for non-Hodgkin's lymphoma that persisted after
13 adjustment for other pesticides."

14 What does that mean?

15 MR. LASKER: Objection to form.

16 THE WITNESS: It means that's the
17 multivariate analysis. You include other things that
18 might include a disease in the analysis until you
19 know which is doing what.

20 BY MR. MILLER:

21 Q Okay. Now, for the first time we're
22 talking about a study here, the AHS study. I want to
23 ask you about it: "The AHS cohort did not show a
24 significantly increased risk of non-Hodgkin's
25 lymphoma."

1 So there was a study that did not show
2 the association between -- between glyphosate and
3 non-Hodgkin's lymphoma, right?

4 A Yes.

5 MR. LASKER: Objection to form.

6 BY MR. MILLER:

7 Q And in fact, you were the author of that
8 study, or one of them, right, sir?

9 A One of the authors.

10 Q And in spite of being the author of the
11 study that didn't show the association, you voted
12 that in fact there was an association based on the
13 totality of the evidence, right, sir?

14 MR. LASKER: Objection to form.

15 THE WITNESS: Yes.

16 BY MR. MILLER:

17 Q Okay. All right. "And glyphosate has
18 been detected in the blood and urine of agricultural
19 workers indicating absorption."

20 What does that mean, sir?

21 MR. LASKER: Objection to form, lacks
22 foundation.

23 BY MR. MILLER:

24 Q You can answer.

25 A If it's in the blood, it had to get there

1 somehow.

2 Q Sure.

3 A So it had to be absorbed through some
4 tissue.

5 Q After you and your working group
6 volunteered, looked at all of this material,
7 concluded there was a positive association between
8 glyphosate and non-Hodgkin's lymphoma, did Monsanto
9 attack you and other members of the IARC panel?

10 MR. LASKER: Objection to form.

11 THE WITNESS: I don't think I quite know
12 how to answer that.

13 BY MR. MILLER:

14 Q I understand. Let's take a look at this
15 document, and it will I think help -- helps us look
16 at it.

17 This is going to be marked as
18 Exhibit 10 -- is it 10 already?

19 MR. LASKER: 10?

20 MR. MILLER: Six. Oh, it's six. Wrote
21 the wrong one. Hardest part of my job.

22 All right. Six. It shall be marked as
23 Exhibit 6. And I have a copy for you, Doctor, and a
24 copy for counsel. Here you go.

25 (Blair Exhibit No. 6 was marked for

1 identification.)

2 BY MR. MILLER:

3 Q This has been produced by IARC on these
4 issues, and I want to ask you a little bit about it,
5 okay?

6 Have you seen this before, Doctor?

7 A Well, I -- I think so.

8 Q Well, let's look at it. If at any time
9 you want to stop and read it, it's okay with me. All
10 right. I don't want to -- I don't want to go too
11 fast and don't expect you to have read everything.

12 But this is promulgated by IARC. It
13 says: "Originally prepared as a confidential
14 briefing for government councilmembers on IARC
15 evaluation of glyphosate and requests for meetings
16 from CropLife."

17 Do you know who CropLife is?

18 A It's an organization that includes many
19 pesticide manufacturers on it.

20 Q And IARC says here in point number 2
21 that: "Monsanto rejected and attacked the IARC
22 findings, calling it junk -- junk science, and
23 immediately requested that the World Health
24 Organization retract the International Agency for the
25 Research of Cancer evaluation, and privately lobbied

1 the USEPA to reject IARC's findings."

2 You see that?

3 A Yes.

4 MR. LASKER: Objection to form,
5 foundation, hearsay. 601, 801.

6 BY MR. MILLER:

7 Q Have you been aware --

8 THE REPORTER: I'm sorry?

9 MR. LASKER: I'm sorry. 601, 602, 801.

10 BY MR. MILLER:

11 Q Have you felt some of this pressure from
12 IARC -- excuse me -- from Monsanto?

13 A Well, I know -- I've seen this.

14 Q Okay. I didn't know that. Okay.

15 A I mean, I've seen that sort of
16 information, yes.

17 Q Yes.

18 MR. LASKER: Same objection.

19 BY MR. MILLER:

20 Q Did you help prepare this or do you know
21 who did?

22 A No.

23 Q Probably Kathy Geiten, you think, or --

24 MR. LASKER: Objection to form.

25 THE WITNESS: I don't know.

1 BY MR. MILLER:

2 Q Okay. On 4d, Monsanto claimed, quote:
3 The data evaluated do not represent, quote, real
4 world exposures.

5 But IARC writes: "This ignores the fact
6 that cancer epidemiology based on real world
7 exposures associated with cancer risk in humans is
8 the cornerstone of IARC Monograph evaluation."

9 That's true, isn't it?

10 MR. LASKER: Objection to form.

11 Counsel, the witness has already said he
12 doesn't -- is not sure he has seen this document and
13 he did not write the document.

14 BY MR. MILLER:

15 Q You can answer.

16 A Epidemiology is based on real world
17 exposures. That's what humans get.

18 Q And is epidemiology the cornerstone of
19 what IARC Monographs are about?

20 A It is at least one of them.

21 Q And are -- and is epidemiology, is it
22 based on real world exposures?

23 A Yes.

24 Q Okay. They go on to say that: "Other
25 members of the working group and IARC Secretariat are

1 now being subject to intimidating letters from
2 Monsanto lawyers."

3 Did you get a letter from Monsanto
4 lawyers about this?

5 MR. LASKER: Same objection.

6 BY MR. MILLER:

7 Q It's okay to answer.

8 A No.

9 Q Did Monsanto lawyers call you?

10 A I don't think so.

11 Q Okay. You have spoken to one of the
12 lawyers that represents plaintiffs at one time,
13 right, just to be fair about all this?

14 A Yes.

15 Q But you're not an expert for either side
16 in this case, are you?

17 A No.

18 Q Okay. Are you aware that Monsanto has
19 been lobbying the House of Representatives to cut off
20 funding for IARC because of this?

21 MR. LASKER: Objection to form.

22 BY MR. MILLER:

23 Q You can answer.

24 A Yes.

25 Q How do you feel about that?

1 MR. LASKER: Objection to form.

2 THE WITNESS: I don't see why that's
3 pertinent.

4 BY MR. MILLER:

5 Q I -- pertinent in the sense that if
6 scientists are being intimidated for their
7 conclusions, that's probably relevant in this
8 lawsuit.

9 MR. LASKER: Objection to form.

10 THE WITNESS: Do I have to answer?

11 BY MR. MILLER:

12 Q No. If you don't want to, I will
13 withdraw the question. Okay?

14 MR. MILLER: All right. Why don't we
15 take a five-minute break and --

16 THE VIDEOGRAPHER: The time is 10:14 a.m.
17 We're going off the record.

18 (Recess.)

19 THE VIDEOGRAPHER: The time is
20 10:33 a.m., March 20th, 2017, and we are on the
21 record with video 2.

22 BY MR. MILLER:

23 Q So what we were just talking about off
24 record, and we shared with your counsel, it's a
25 protective order that the court wants us to have

1 witnesses sign before they look at documents. We
2 haven't had any problems. There are lots of experts
3 on both sides who have signed it. They've looked at
4 documents.

5 I will be frank with you, Dr. Blair, my
6 experts have already seen the document I'm going to
7 show you, so you wouldn't be the only one that looked
8 at it. I have lots of fellows and gals who have
9 looked at it. But we all know you're a man of honor,
10 you sign this, you're not going to show it to
11 anybody. So that's all we're asking.

12 A So that's not my question.

13 Q What's your question?

14 A My question is I don't -- I do sign it, I
15 never tell anyone, it gets leaked, and I get accused
16 because people know I had it. What's my protection?

17 Q Well, I mean, I see your point. I mean,
18 I'm in the same boat. I've signed --

19 A There is none.

20 Q Well, I guess honesty is your protection.
21 You really won't leak it, so you won't -- I've
22 seen -- and you guys can speak to this, but I've seen
23 one litigation one lawyer who leaked something, and
24 Zyprexa comes to mind, and there is some sort of
25 coding in the documents or something, I don't know,

1 but they will know it's not you. We're not going to
2 give you a copy. You're going to leave without a
3 copy anyway, so you couldn't leak it.

4 MR. GREENE: Dr. Blair, I've had a number
5 of cases where we've had confidentiality agreements
6 because of documents being produced in my cases by
7 the defendant, and my clients have signed it. It's
8 just part of the discovery process. And I've never
9 had any repercussions from anybody or anything
10 dealing with these agreements.

11 I would suggest, as your counsel, that
12 you can sign this.

13 THE WITNESS: Okay. Okay.

14 MR. MILLER: Okay, great. Do you need a
15 pen?

16 THE WITNESS: I need a pen.

17 MR. MILLER: Yes, sir. Here you go, sir.

18 MR. GREENE: Mr. Miller, can I keep a
19 copy of it?

20 MR. MILLER: Absolutely. Absolutely.

21 THE WITNESS: This is me here, right?

22 MR. MILLER: Yes, sir.

23 THE WITNESS: (Witness signs document.)

24 MR. MILLER: All right. Thank you,
25 Doctor.

1 All right. You've got it. Okay.

2 Here you go, Jeffrey. You're in charge
3 of those, and if you want, we will send a copy of the
4 signed one.

5 MR. GREENE: Just out of curiosity, do
6 you want me to sign something?

7 MR. MILLER: I don't think you have to.
8 I don't think it's required.

9 MR. LASKER: Actually, it probably is.

10 MR. MILLER: Okay. Well, then hand it on
11 down.

12 MR. LASKER: Since you're not counsel of
13 record.

14 MR. GREENE: (Counsel signs document.)

15 (A discussion was held off the record.)

16 BY MR. MILLER:

17 Q All set?

18 All right. Doctor, thank you for your
19 patience.

20 I want to ask you a little bit about the
21 North American Pooled Project, the NAPP. It's
22 "Pooled analyses of case-control studies of
23 pesticides and agriculture exposures,
24 lymphohematopoietic cancers" --

25 A Yes.

1 Q -- "and sarcomas."

2 Are you one of the authors of this new
3 study?

4 A One of the authors of these papers, yes.

5 Q Yes. And I will mark it as Exhibit 7, a
6 poster presentation concerning the NAPP study. All
7 right?

8 (Blair Exhibit No. 7 was marked for
9 identification.)

10 BY MR. MILLER:

11 Q And here is a copy, sir. Thanks.

12 And that's one of the reasons we had you
13 sign a protective order is because I got this from
14 the files of Monsanto. Okay.

15 A Then I have a question.

16 Q Sure.

17 MR. LASKER: For the record, I don't
18 think this document was marked "Confidential." It's
19 a public document.

20 MR. MILLER: This is a public document,
21 but my copy is marked "Confidential." I'm just
22 being --

23 THE WITNESS: Yes, it's published in the
24 proceedings.

25 MR. MILLER: Yes, I understand.

1 MR. LASKER: I don't think these are
2 confidential documents.

3 MR. MILLER: Yeah, right, this is not a
4 confidential document.

5 MR. LASKER: It doesn't say
6 "Confidential" on this.

7 MR. MILLER: All right, it's not a
8 confidential document.

9 BY MR. MILLER:

10 Q So let me ask you about Exhibit 7, and
11 just generally, let me ask you about the North
12 American Pooled Project. Please tell me something
13 about this study that you're one of the authors of.

14 MR. LASKER: Objection.

15 THE WITNESS: Pooling is assembling data
16 from different individual studies and putting it
17 together for analysis, which makes the analyses more
18 robust because there are larger numbers.

19 BY MR. MILLER:

20 Q And are you still -- is this study still
21 ongoing?

22 A Yes.

23 Q And has it generated some results?

24 A I think only this, although maybe there
25 is one other paper on another cancer. I sort of

1 forget for sure now. But other things are ongoing.

2 Q Okay. Got it.

3 Do you know John Acquavella?

4 A I do.

5 Q How do you know John Acquavella?

6 A John is an epidemiologist that has
7 studied farmers and pesticide exposures.

8 Q In the agriculture workers study, did --
9 which you were an author of we just spoke briefly
10 about, right?

11 A Yes.

12 Q Previously. Did John Acquavella provide
13 some of the input on how to collect the data in that
14 study?

15 A No.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] MR. MILLER:

10 Q Is this data published now?

11 MR. LASKER: Lack of foundation.

12 BY MR. MILLER:

13 Q Or any data, it's not published --

14 A Only the abstract.

15 Q I see. And when do you anticipate
16 publication of the final NAPP study?

17 A I'm not sure when that will be out.

18 Q Within a year, do you think?

19 A Probably within a year.

20 Q Okay. Do you know what journal it's been
21 presented to for publication?

22 A I don't think it's been submitted yet.

23 Q I see. Okay. All right.

24 But these numbers are generally
25 consistent with what you remember the findings being?

1 A Yes.

2 (Counsel conferring.)

3 BY MR. MILLER:

4 Q Okay. I'm going to show you a
5 publication that you and others published in
6 Environmental Health Perspectives in February of
7 2015, and just ask you a few questions about it, and
8 I'm getting about to where I'm about at the end of
9 the line with my questions. You've been very patient
10 with me.

11 Here is a copy for you, sir.

12 MR. MILLER: And I have a copy for
13 counsel.

14 (Blair Exhibit No. 9 was marked for
15 identification.)

16 BY MR. MILLER:

17 Q All right. This is a publication "IARC
18 Monographs: 40 Years of Evaluating Carcinogenic
19 Hazards to Humans."

20 Do you remember that?

21 A Yes.

22 Q And you're one of the authors?

23 A Yes.

24 Q All right. I just put the sticker on the
25 wrong copy. Hang on.

1 All right. A few questions on it, and
2 then we'll move on.

3 Basically, what you were looking at here
4 was to look historically at IARC's findings to see if
5 they had gotten it right or wrong over the years. Is
6 that a fair assessment?

7 A And to discuss the process that they go
8 through.

9 Q And what you concluded, and correct me if
10 I'm wrong, was -- was that IARC got it right most of
11 the time, or wrong?

12 A That they get it right most of the time.

13 Q It says, for background: "Some critics
14 have claimed that IARC working groups, failures to
15 recognize study weaknesses and biases of working
16 group members, have led to inappropriate
17 classification of a number of agents as carcinogenic
18 to humans."

19 That was the background for which caused
20 you to want to research this subject, right?

21 A Yes.

22 Q And what did you do to investigate this
23 to see if in fact IARC had been getting it right more
24 often than not?

25 MR. LASKER: Objection to form,

1 soliciting expert opinion.

2 BY MR. MILLER:

3 Q You can answer.

4 A Well, we looked at the process that IARC
5 followed, the historical examples of what they had
6 done, and whether or not later changes were made to
7 the evaluations to indicate general agreement with
8 what IARC had done or not.

9 Q And you concluded, "you" being this group
10 of scientists, concluded that these recent criticisms
11 are unconvincing, right?

12 MR. LASKER: Objection to form, beyond
13 the scope.

14 THE WITNESS: Yes.

15 BY MR. MILLER:

16 Q I'm not real good with numbers, but I'm
17 going to give it a try. One, two -- there's over 110
18 scientists that authored this paper.

19 A Right.

20 Q So you're 40 years in -- in your field
21 now?

22 A Yeah, right.

23 Q And over that 40 years of studying this
24 issue, you have observed that farmers have an
25 increased incidence of this hematopoietic cancer,

1 right?

2 A Among others.

3 Q And non-Hodgkin lymphoma is a cancer of
4 the hematopoietic system, right?

5 A Yes.

6 Q And you agree farmers have a good recall
7 of what pesticides they've used, right?

8 A Yes.

9 Q Even homeowners are aware of what they
10 spray on their products -- I mean on their gardens
11 and their lawns?

12 A Less so than farmers.

13 Q Are they good, though, or no good at it,
14 do you think?

15 A It depends.

16 Q And exposure misclassification can occur
17 in a cohort study, can't it?

18 A It can occur in all studies.

19 Q Yes, sir. Confounding is a problem but
20 it rarely occurs; is that fair?

21 MR. LASKER: Objection to form.

22 THE WITNESS: That's fair.

23 BY MR. MILLER:

24 Q Exposure miss -- exposure
25 misclassification most likely causes false negatives;

1 is that fair?

2 A Correct.

3 MR. LASKER: Objection to form, beyond
4 the scope, calls for expert opinion.

5 MR. MILLER: I've taken enough of your
6 time. I may come back and ask some rebuttal
7 questions. I'm now going to yield the floor to the
8 attorneys for the Monsanto Corporation.

9 THE WITNESS: Okay.

10 MR. MILLER: Thank you so much for your
11 time, Dr. Blair.

12 MR. LASKER: Go off the record.

13 THE VIDEOGRAPHER: The time is
14 10:52 a.m., And we're going off the record.

15 (Recess.)

16 THE VIDEOGRAPHER: The time is 10:57
17 a.m., and we're back on record.

18 CROSS-EXAMINATION

19 BY MR. LASKER:

20 Q Good morning, Dr. Blair. My name is Eric
21 Lasker on behalf of Monsanto. I have some questions
22 for you this morning.

23 A Okay.

24 Q Let's start off where you left off with
25 plaintiffs' counsel. You have been doing research

1 regarding cancer in farmers for, what, 40 years now?

2 A Close.

3 Q And, in fact, you have publications on
4 cancer and hematopoietic cancers in farmers dating
5 back, from my research, at least to 1979?

6 A Yes.

7 Q And there have been epidemiological
8 studies that have associated farming with
9 hematopoietic cancers and non-Hodgkin lymphoma dating
10 back to the 1960s, right?

11 A Yes.

12 Q And that was well before glyphosate was
13 on the market, correct?

14 A Yes.

15 Q So it's fair to say that there is some --
16 something going on with farmers that appears to be
17 associated with an increased risk of non-Hodgkin
18 lymphoma that predated glyphosate being on the scene,
19 right?

20 A Yes.

21 Q There is something going on with farmers
22 and non-Hodgkin's that is associated with an
23 increased risk -- strike that. Strike that.

24 There is something going on with farmers
25 and their exposures that is leading to an increased

1 risk of non-Hodgkin lymphoma that we know for a fact
2 can't be glyphosate, correct?

3 A Yes.

4 Q And when plaintiffs' counsel was asking
5 you about the issue of confounding, that is in
6 epidemiology when there are other factors that may be
7 in play that cause an association between a disease
8 in a certain population aside from the one you're
9 looking at, correct?

10 A That is part of the definition of
11 "confounding." Only part.

12 Q But for farmers, when we're studying
13 farmers today and we're looking at various
14 pesticides, and in particular, when we're looking at
15 glyphosate, we know that there are other factors out
16 there that would be independent of glyphosate that
17 would increase risks for farmers of non-Hodgkin
18 lymphoma, correct?

19 A Probably. When you say we know for a
20 fact --

21 Q Well --

22 A -- is I think not true.

23 Q Okay. But when you're studying
24 glyphosate in epidemiology, when you're focusing on
25 glyphosate in farmers, you want to make sure that you

1 control -- that you can control for those other
2 possible confounders to be sure that you are actually
3 studying glyphosate, correct?

4 A Yes.

5 Q Now, your research into farmers has
6 included both case -- what's called case-control
7 studies and cohort studies, correct?

8 A Yes.

9 Q And you played a significant role -- I
10 think this was referred to briefly in your testimony
11 with questions from plaintiffs' counsel -- about the
12 formation of the Agricultural Health Study, correct?

13 A Correct.

14 Q And the Agricultural Health Study is a
15 collaborative effort involving the National Cancer
16 Institute, the National Institute of Environmental
17 Health Sciences, and the United States Environmental
18 Protection Agency, correct?

19 A Those three, and also the National
20 Institute of Occupational Safety and Health, and the
21 University of Iowa.

22 Q And the Agricultural Health Study is
23 what's called a cohort study, correct?

24 A Yes.

25 Q And that is when you get a group of

1 individuals, and in this case, farmers, correct?

2 A Yes.

3 Q And you --

4 A And their spouses.

5 Q And their spouses.

6 And you find out various exposures
7 they've had, various facts about them before they
8 have any -- the disease in question that you're going
9 to be studying, correct?

10 A Correct.

11 Q And then you follow them over time to
12 determine whether or not that disease develops --

13 A Yes.

14 Q -- or certain diseases develop?

15 And in this case you brought together --
16 how many -- how many farmers and their wives did you
17 gather information on in your study?

18 A About 80,000.

19 Q And for those 80,000 then, you obtained
20 information about all sorts of different exposures
21 that they may have had, correct?

22 A Yes.

23 Q And that included obtaining information
24 regarding any exposures to glyphosate, correct?

25 A Yes.

1 Q And at the time you gathered that
2 information, you were not -- you were looking at
3 exposures, historical exposures going back in time,
4 correct?

5 A Yes.

6 Q And the Agricultural Health Study was
7 initiated and formed to address some of the
8 limitations in the earlier case-control studies that
9 had been conducted regarding risks of pesticides or
10 other exposures in farmers, correct?

11 A It -- it was initiated and formed to
12 provide a different design to look at the same issue.

13 Q It was initiated, at least in part, to
14 address some of the limitations of the case-control
15 studies, correct?

16 A Yes.

17 Q And, for example, one of the limitations
18 of the case-control studies was something called
19 recall bias, correct?

20 A It's a potential limitation.

21 Q The Agricultural Health Study was
22 initiated in order to have a study that was examining
23 the possibility of exposures, for example, glyphosate
24 and non-Hodgkin lymphoma that did not have this
25 problem with recall bias, correct?

1 A Correct.

2 Q The issue of recall bias is that when you
3 are asking individuals who have a disease already
4 about their past exposures, the concern is that they
5 will recall more exposures than people who don't have
6 the disease, correct?

7 A That's a concern.

8 Q If you have recall bias, then you're
9 going to have an artificial increase in that odds
10 ratio, those numbers we were looking at previously,
11 that is due to the fact that the individual with
12 cancer just recalls more exposures, not that he
13 actually had more exposures, right?

14 A Of course, it depends on the direction of
15 the bias. It can be either direction.

16 Q But for recall bias, if a person with
17 cancer recalls more exposures than a person who
18 doesn't have cancer and hasn't been thinking about
19 that --

20 A If they record more exposures, that would
21 be true. If they recalled less, it would be the
22 other direction.

23 Q Understood. And so the Agricultural
24 Health Study was designed to avoid that problem
25 altogether, correct?

1 A Correct.

2 Q The Agricultural Health Study was also
3 designed to try and deal with issues of
4 misclassification of exposures by going to farmers
5 who you -- you testified earlier have better recall
6 and also periodic follow-up, correct?

7 A Yes.

8 Q At the time of enrollment and -- and if
9 you don't have this recollection, I understand. I
10 will show you some studies and we can talk about it.

11 But at the time of enrollment, the
12 members of the AHS cohort had an average of about 15
13 years of experience mixing or applying pesticides,
14 correct?

15 A Sounds about right.

16 Q And you have been -- just to step back,
17 you've been researching the issues of potential
18 association between pesticides and cancer for nearly
19 your entire professional career, correct?

20 A Correct.

21 Q The effort to determine pesticides that
22 might be associated with cancer has been your life's
23 work, correct?

24 A Well, one of them.

25 Q You certainly invested a lot of time into

1 looking for potential expose -- associations between
2 pesticides and hematopoietic cancers, correct?

3 A Yes.

4 Q When you heard that IARC was going to
5 look at this issue that you've been studying for 40
6 years of pesticides and cancer, you reached out to
7 them to ask them about what their -- what analyses
8 they were going to undertake, correct?

9 Let me strike that and ask again.

10 When you learned that IARC was going to
11 be looking at pesticides and cancers, your life's
12 work, you contacted IARC about that, correct?

13 A Well, when IARC start -- that may be
14 true, but just let me explain a little. When IARC
15 decides they're going to do something, they send out
16 information to people who might be able to provide
17 them with relevant papers and that sort of thing. So
18 if that happened, then I probably contacted them.

19 Q Now, Dr. Blair, you provided counsel to
20 both sides with certain documents from your own
21 files.

22 A Yes.

23 Q Well, I'm going to ask you some questions
24 about some of those documents. I know we haven't
25 talked about them yet with plaintiffs' questioning.

1 Let me mark as the next exhibit in line,
2 and we will make this --

3 MR. LASKER: How have we been doing this?
4 Has it just been sequential?

5 MR. MILLER: I would continue with the
6 numbering.

7 What is the next number?

8 MR. LASKER: It's 10.

9 MR. MILLER: 10? That will continue.
10 (Blair Exhibit No. 10 was marked for
11 identification.)

12 BY MR. LASKER:

13 Q And this is an e-mail, Dr. Blair, that we
14 obtained from your files, just in order to refresh
15 your recollection. This is dated March 19th, 2014,
16 and this is an e-mail from you to Kurt Straif,
17 correct?

18 A Yeah.

19 Q And who is Kurt Straif?

20 A He's the head of the IARC Monograph
21 program.

22 Q And seeing this e-mail, does this refresh
23 your recollection as to whether or not you reached
24 out to IARC after you found out that they were going
25 to be conducting an analysis of pesticides and --

1 A Yeah, after the announcement about the
2 meeting had occurred.

3 Q Now, do you recall how IARC responded to
4 your e-mail?

5 A No.

6 (Blair Exhibit No. 11 was marked for
7 identification.)

8 MR. LASKER: And counsel.

9 BY MR. LASKER:

10 Q And I'm going to show you a highlighted
11 document that I've highlighted to help you focus on
12 parts of this.

13 (A discussion was held off the record.)

14 BY MR. LASKER:

15 Q So, Dr. Blair, in response to your
16 inquiry, Kathryn Guyton sent you an e-mail back. Who
17 is Kathryn Guyton?

18 A She was the -- like the IARC coordinator
19 for that evaluation of pesticides that included
20 glyphosate.

21 Q And Kathryn Guyton asked whether you
22 would be interested in participating in the
23 Volume 112 meeting of IARC, correct?

24 A Yeah.

25 Q And do you recall how you responded to

1 that request?

2 A I think initially I was saying, well,
3 maybe not.

4 Q Okay. Let's mark the next exhibit in
5 line. Well, strike that.

6 Do you recall having a concern about
7 serving on working group 112 because the working
8 group would be looking at many of the studies that
9 you had been conducting that you had published as
10 part of your life's work?

11 A Yep, that's one of them.

12 Q Your concern was that, given that this
13 was your life's work, it might be viewed as -- by
14 others as improper for you to be sitting on a
15 committee that was going to be evaluating whether or
16 not what you had been researching for 40 years
17 actually indicated an association of certain
18 pesticides and cancer, correct?

19 A Correct.

20 Q IARC continued, though, to solicit your
21 involvement in this working group despite that
22 concern, correct?

23 A Yes.

24 Q And in fact, Kathryn Guyton of IARC asked
25 that you chair the entire committee that was going to

1 be looking at this issue, correct?

2 A Yes.

3 Q When plaintiffs' counsel showed you the
4 part of that preamble that asks individuals on the
5 working group to disclose potential interests that
6 might give rise to questions of bias, does that
7 disclosure form require individuals to disclose their
8 prior research activities and whatever interest they
9 may have in the outcome of a monograph because of
10 those research activities?

11 A I'm not sure.

12 Q Did you fill out a conflict of interest
13 form that listed as conflicts your life's work in
14 trying to find associations between pesticides and
15 cancers?

16 A I -- actually, I don't recall.

17 Q You don't recall doing that?

18 A I mean, I had to fill one out, but
19 generally, the -- the conflicts aren't the research
20 you have done. The conflicts is hire for money, that
21 sort of thing.

22 Q So if there are individuals invited to be
23 members of IARC working groups who have personal
24 interests in the outcome of the IARC evaluation but
25 do not have financial conflicts, that information

1 does not have to be disclosed, correct?

2 A I don't think so.

3 Q Dr. Blair, the IARC working group that
4 considered glyphosate also review -- reviewed four
5 other pesticides, correct?

6 A Yes.

7 Q The other four pesticides were TCVP,
8 parathion, malathion, and diazinon, correct?

9 A Yes.

10 Q For each of these five pesticides, am I
11 correct that there were four different subgroups
12 formed: One for exposure, one for epidemiology, one
13 for animal toxicology and one for mechanism?

14 A Right.

15 Q And I think you stated that maybe three
16 months before the meeting, individuals on the working
17 group would be tasked to look at certain parts of the
18 science with respect to the various pesticides that
19 were being reviewed, correct?

20 A To look at the certain parts of?

21 Q Certain parts of the scientific
22 literature.

23 A Yes, right.

24 Q The members of the working group would
25 not be looking at all the scientific literature on a

1 pesticide before they went to the meeting, correct?
2 For example, you didn't look at anything outside of
3 epidemiology, correct?

4 A Up until shortly before the meeting when
5 drafts, other drafts were distributed on it.

6 Q Okay.

7 A But mainly you focused on your discipline
8 and the working group you were in, yes.

9 Q Is it also fair to say that prior to that
10 week -- that one-week meeting, you would be focusing
11 on specific assignments that had been given to you to
12 write certain parts of the Monograph?

13 A That would be the main focus, not the
14 only focus. And the next focus is the subgroup
15 you're in, to look at that literature because that's
16 where your expertise lies.

17 Q Okay. And with respect to working group
18 112, the working group members split up the work that
19 they had with respect to all five of these pesticides
20 and all four different subgroup analyses, correct?

21 A Yes.

22 Q And I'd like to show you a document we
23 received from another IARC working group member,
24 Dr. Ross, and I think there was some testimony about
25 him earlier today. And this is going to be --

1 MR. LASKER: Exhibit number again?

2 Marked this Defense Exhibit 11, is that the correct
3 number?

4 MR. MILLER: 12.

5 MR. LASKER: 12?

6 (Blair Exhibit No. 12 was marked for
7 identification.)

8 MR. MILLER: Yeah, 11 was an e-mail from
9 Kathryn Guyton. And you have a copy of 12 --

10 MR. LASKER: Yep.

11 BY MR. LASKER:

12 Q Actually, Dr. Blair, if you can just
13 trade -- oh, no, never mind. Got one.

14 Give this one -- you can actually have
15 this one so the court reporter can have the official
16 exhibits.

17 And, Dr. Blair, I don't expect you to
18 remember the various assignments that individuals on
19 the working group had, but if this is -- if you look
20 at the second page of this document, on the bottom it
21 says "last update," and you can look at the one in
22 your hand, but "Last update, November 20, 2014." So
23 this is about three-and-a-half months before that
24 working group meeting, the plenary session, the
25 one-week meeting we've talked about, correct?

1 A Yes.

2 Q So that's about consistent with your
3 testimony earlier that it was about three months
4 beforehand that people started getting to work and
5 looking at some of the science, correct?

6 A Yes.

7 Q And for working group 112, they had a lot
8 of different eyes of science that they had to look
9 at, correct? They had -- what is it, one, two,
10 three, four, five, six, seven, eight, nine, ten,
11 eleven, twelve, thirteen, fourteen, fifteen,
12 sixteen -- seventeen different sections of science or
13 groups of science that they had to look at for
14 malathion, correct?

15 A Yes.

16 Q And there was equally -- it looks like
17 about 15 or more bodies of scientific literature they
18 were looking at for parathion. Correct?

19 A Yes.

20 Q And there were 15 categories of science
21 for diazinon and also for glyphosate and for
22 tetrachlorvinphose (phonetic). Is that correct?

23 A Phos.

24 Q Phos.

25 And for each of these different

1 pesticides, individual members of the working group
2 were assigned responsibility to look at the
3 scientific literature in that area, correct, and then
4 to prepare the initial draft analysis that the
5 working group would look at during that one-week
6 meeting, correct?

7 A Yes.

8 Q And I've looked through this listing of
9 assignments, and correct me if I'm wrong, but you
10 were not given any assignment to write up any
11 individual portions of the working group's draft
12 Monographs prior to the meeting; is that right?

13 A No. Bottom of the second page, "Studies
14 of Cancer in Humans on Tetrachlorvinphos."

15 Q Okay. So your focus prior to the meeting
16 and prior to the one-week meeting was to review the
17 literature on tetrachlorvin -- tetrachlorvinphos?

18 A Tetrachlorvinphos, yes.

19 Q And prepare a report that would then form
20 the basis of the discussion of the epidemiology
21 subgroup on tetrachlorvinphos at that meeting,
22 correct?

23 A Yes.

24 Q And that was the focus of the research
25 you were doing or the study you were doing prior to

1 that meeting, correct?

2 A Tetrachlorvinphos was in those studies,
3 that's right.

4 Q And for each of the individual
5 pesticides, and, for example, with respect to
6 glyphosate, there was particular individuals who were
7 the people who during those -- that three-month
8 period prior to the meeting were looking at the
9 literature with respect to glyphosate. So, for
10 example, with epidemiology, that was Dr. Forrest --
11 Forastiere, correct?

12 A Forastiere.

13 Q Forastiere. And for animal toxicology,
14 that was Dr. Jameson, correct?

15 A Yes.

16 Q Those would be the individuals -- those
17 would have been the individuals who within that
18 three-month period were -- prepared an analysis on
19 either the epidemiology of glyphosate or on animal
20 studies and glyphosate that would then be presented
21 to that working group during that one-week meeting,
22 correct?

23 A Preparing a document and the tables, yes.

24 Q You mentioned previously that those
25 documents then were distributed to the working group

1 members shortly before the meeting; is that correct?

2 A Sometime before the meeting, shortly. I
3 must admit I don't quite remember the time frame,
4 but of --

5 Q Do you remember -- do you remember how
6 many days before the working group meeting --

7 A No.

8 Q -- you obtained copies of any of the --

9 A That I don't. It's because there were --
10 there's websites where they're on, and you can go to
11 the website. The ones you -- people pay most
12 attention to, of course, is the working group you're
13 in, but the documents are fed into a website that is
14 available to group members.

15 Q So there's no process to actually
16 physically send to working group members any analyses
17 of these pesticides or glyphosate before the working
18 group meeting --

19 A I don't think that was the case. I think
20 you used the website.

21 Q So for individual members of the working
22 group, they either did or did not look at -- go to
23 the website to find out something before the meeting
24 began, correct?

25 A I assume so, yeah.

1 Q Some of the working group members may
2 have just shown up at the meeting and seen these
3 analyses for the first time when they -- when the
4 working group plenary session -- or when the working
5 group meeting began, correct?

6 A I have no way of knowing.

7 Q Well, for you personally, would I be
8 correct in my understanding that you did not look at
9 any analyses for glyphosate, for example, for
10 anything other than epidemiology before you got to
11 that meeting?

12 A No, I don't think that's correct. I
13 don't remember how many of all the things I scanned,
14 but I did at least look at a lot of -- whether I
15 looked at every single one, I don't know, but I
16 looked at a lot of them because I knew you were going
17 to have to evaluate things.

18 Q Do you recall how many days that was
19 before the meeting began that you looked at those?

20 A No.

21 Q And you do not know what was reviewed by
22 other working group members before that one-week
23 meeting began, correct?

24 A No, other than each draft was assigned a
25 secondary reviewer, and so every draft had a

1 secondary reviewer who looked at it before the
2 meeting.

3 Q Okay. So it would -- there would be at
4 least two people of the working group, but you're not
5 sure how many others who would have looked at drafts
6 of analyses before that one-week meeting began?

7 A True.

8 Q The bulk of the work then of doing the
9 analysis for the working group of all the data took
10 place during that one-week session, correct?

11 A Well, that -- I mean it's a little hard
12 to answer because a lot of work goes into reviewing
13 all the papers by the people who did -- wrote the
14 draft and so forth, but the bulk -- now I don't know,
15 this is adding up minutes.

16 Q Right.

17 A I don't know.

18 Q So putting aside sections for which an
19 individual was the principal author or maybe the
20 secondary author, the bulk of the work then for the
21 working group in analyzing the scientific literature
22 would take place during that one-week session,
23 correct?

24 A Well, a lot of it would. The bulk -- I'm
25 just quibbling with the bulk because I don't have any

1 information to tell you about that other than those
2 documents are available.

3 Q So you don't know one way or the other
4 whether --

5 A I don't know one way or other. So I
6 can't answer your comment where the bulk of it was --

7 Q So it's possible that working group
8 members would be looking at the science for the first
9 time at the beginning of that one-week meeting or
10 it's possible not, you just can't say one way or the
11 other; is that fair?

12 A I can't say one way or the other.

13 Q So let's talk about that one-week period
14 then. During that one week, the working group needed
15 to research -- specifically with Volume 112, the
16 working group needed to reach classifications under
17 the IARC scheme of cancer rating for five different
18 pesticides, correct?

19 A Correct.

20 Q So is this a -- is this -- are you
21 working through weekends, or is it a five-day
22 workweek, or how long was this?

23 A You work however much time you have
24 available while you're there. It often means nights
25 and weekends.

1 Q So for the one-week session for each of
2 the five pesticides, you had maybe a day or a little
3 bit more of a day of time to be able to reach a
4 determination, correct?

5 A Doing the division, that is correct. But
6 you understand that it isn't done -- things are done
7 first all things on one day and all things on the
8 next.

9 Q Right.

10 A They repeat it and come back to it.

11 Q Understood. And if I understood
12 correctly, during the first week of the week the
13 working group splits up into those subgroups,
14 correct?

15 A Yes.

16 Q So you have subgroup meetings for the
17 first part of the week, and then you meet together as
18 a plenary group, the entire group about midway?

19 A There's -- there are plenary sessions
20 every day. Always plenary sessions. In the early
21 part, they are more instructive rather than
22 evaluative.

23 Q When does the working group as a whole
24 first have an evaluative meeting to reach an
25 assessment?

1 A I would be guessing at what day that
2 actually comes on.

3 Q Sometime in --

4 A I mean it's not the first day.

5 Q The evaluative process of determining
6 whether or not the science in particular categories
7 point one way or the other, first is conducted by the
8 subgroup that has responsibility for that area,
9 correct?

10 A Correct.

11 Q So, for example, when you broke into the
12 epidemiology subgroup, you would be then looking at
13 the analyses that were prepared by the individual
14 assigned for each of five different pesticides,
15 correct?

16 A In some serial order.

17 Q Yes, obviously.

18 You would then listen to the
19 presentations of the individual working group member
20 who had been assigned to prepare the analysis for
21 that pesticide, correct?

22 A Prepare the document for that pesticide.

23 Q And over the next maybe two or three
24 days, the subgroup would go through each of those
25 analyses and reach their conclusion based upon the

1 subgroup expertise as to how they are classified as
2 science with respect to each of those pesticides,
3 correct?

4 A Would go through the documents of the
5 review of the papers to come to that conclusion. I
6 just object to your use of "analyses."

7 Q Okay. I'm sorry.

8 A Some of the times it's just putting
9 things in a table. That's hardly an analysis. It's
10 an assembly of the data.

11 Q Fair clarification. So let me go back
12 then.

13 The -- the work that was being done
14 during that three-month period before the meeting,
15 the responsibility was to assemble the data and put
16 into tables. It was not to come up with an
17 evaluation during that prior period, correct?

18 A Right.

19 Q So the evaluation process doesn't begin
20 until the start of that one-week period, correct?

21 A Correct.

22 Q So -- and then during that one-week
23 period for Monograph 112, which is the monograph for
24 glyphosate, the working group was then doing the
25 analysis for five different pesticides, correct?

1 A What analysis was done and evaluation of
2 five different pesticides.

3 Q So the analysis and evaluation that led
4 to the classification of glyphosate was -- and I
5 recognize it was split over the week -- but was a
6 total combined time of roughly a day plus doing the
7 math, correct?

8 A Understanding it's just doing the math,
9 and I don't actually remember how many -- how much --
10 how many hours it took, and it varies by how easy it
11 is to come to a decision.

12 Q So you would have maybe a day or two of
13 analysis and evaluation that went into the IARC
14 working group's classification of glyphosate,
15 correct?

16 A Roughly correct.

17 Q So --

18 A But spread over the five days.

19 Q Right.

20 A So it -- you know, it's important that
21 it's not just done this day and then it's done.

22 Q Right.

23 A It's done, you look at it, you think
24 about it, you come back to it, you look at it and
25 think about it, you come back to it.

1 Q Right.

2 A That's a different process than just you
3 got this day.

4 Q Understood. And that would be the same
5 process for the other subgroups. So, for example,
6 IARC's -- the IARC working group analysis of the
7 science with respect to animal toxicology of
8 glyphosate would have been conducted with
9 different -- over different days for a total amount
10 of time, but maybe a day plus for glyphosate,
11 correct?

12 A In the same procedure of looking at it,
13 evaluating, reconsidering, coming back a day later
14 and so forth.

15 Q The analysis of glyphosate science with
16 respect to mechanism of toxicity and the like, that
17 would have been a combined total time of
18 approximately a day or a little bit more than a day
19 for the IARC working group, correct?

20 A Again, in the same procedure that people
21 go through, just doing the math. I don't actually
22 know how much time they spent.

23 Q Well, it's obviously something less than
24 a week's worth of time, some portion, one-fifth or a
25 little bit more of the time --

1 A Yes.

2 Q -- they spent on glyphosate.

3 So that's a lot of work in a short period
4 of time.

5 A Except the documents are already there.

6 Q So -- but for the analysis, it's a lot of
7 work in a short period of time. The analysis of
8 the --

9 A No. Again, you keep saying "analysis."

10 Q Okay.

11 A It's not an analysis. It's a document
12 with tables that have been prepared that the people
13 look at.

14 Q I understand. My -- my mistake. Let me
15 clarify.

16 The evaluation analysis only takes place
17 during that one-week period, correct?

18 A Yes.

19 Q And for the working group for that
20 one-week period where you actually do the evaluation
21 and the analysis of five different pesticides with
22 four different categories of science, that's a lot of
23 work in a week.

24 A It is a lot of work.

25 Q For glyphosate -- well, strike that.

1 When you have the first plenary session,
2 which is evaluative -- I think that's the term you
3 used -- well, strike that.

4 At the end of that process where the
5 subgroup is doing its evaluations of the literature
6 in its -- in its discipline, does it then provide a
7 presentation to the plenary of what the subgroup has
8 determined is its conclusion with respect to that --
9 the strength of that science for that pesticide?

10 A Yes.

11 Q So the epidemiology subgroup would give
12 its presentation to the full plenary session on the
13 epidemiologic evidence for each of the different
14 pesticides, correct?

15 A Yes. Not all at one time. Again, as
16 they come along.

17 Q Right. Understood.

18 For glyphosate, the full working group
19 ultimately determined that the epidemiology on
20 glyphosate and cancer was limited, right?

21 A For the full working group?

22 Q Yes.

23 A Well, for the full working group, it's
24 listed as probable.

25 Q I'm sorry. I'm limiting it just to the

1 epidemiology, not for the -- not for the full
2 analysis.

3 A Yes.

4 Q But the full working group does --

5 A Does look at each one of them, yes.

6 THE REPORTER: You're talking at the same
7 time. It's?

8 THE WITNESS: It was limited.

9 BY MR. LASKER:

10 Q So for the full --

11 A That was a recommendation of the
12 subgroup, and the working plenary group agreed.

13 Q So just so I'm clear, the IARC working
14 group, both the subgroup and the full working group,
15 determined that the evidence of glyphosate with
16 respect to non-Hodgkin lymphoma was limited, correct?

17 A For epidemiology, yes.

18 Q The term "limited" as used by IARC, and
19 as you understood it when you were making that
20 finding, is that epidemiology -- epidemiology studies
21 have found an association between glyphosate and
22 cancer, but that chance, bias and confounding could
23 not be excluded as explanations for the finding,
24 correct?

25 A Correct.

1 Q Now, you had previously in your previous
2 answer talked about the separate evaluation that IARC
3 came to as far as overall the 2A classification,
4 correct? So epidemiology is a part of that, right?

5 A Yes.

6 Q But the 2A classification for glyphosate
7 was based, at least in part, on a separate
8 determination regarding the animal studies, correct?

9 A Yes.

10 Q The 2A classification for glyphosate is
11 based upon the determination that the animal studies
12 provided strong evidence of carcinogenicity in
13 animals for glyphosate, correct?

14 A Yes, that's as I recall it. Because now
15 you're going to the subgroup --

16 Q Right.

17 A -- that I didn't sit in on, you know, and
18 I just have to remember what they said. Yes, I think
19 that's right.

20 Q When the animal subgroup did its initial
21 assessment of glyphosate and presented their
22 conclusions to the plenary session, it had not
23 classified the animal studies of glyphosate as
24 providing strong evidence of cancer in animals, had
25 it?

1 A I don't remember.

2 Q Do you recall whether or not in fact the
3 animal toxicology subgroup had determined that the
4 animal studies provided limited to inadequate
5 evidence that glyphosate could cause cancer in
6 animals?

7 A I -- I don't recall.

8 Q Well, Dr. Blair, let me -- let me show
9 you another document that's been provided to us, and
10 I will represent in -- from Dr. Blair -- Matthew
11 Blair, and Dr. Blair was another member of the
12 working group 112, correct?

13 A I think so.

14 Q You testified about him earlier. He did
15 the work for Mississippi State, correct?

16 A No.

17 Q I think you said he's an expert in
18 animal --

19 A You said Matthew Blair?

20 Q I'm sorry.

21 A Ross.

22 Q Matthew Ross. I understand. My
23 apologies.

24 A Yes.

25 Q This is a document you received from

1 Dr. Ross, and Dr. Ross was a member of working group
2 112, correct?

3 A Yes.

4 Q You had mentioned that Dr. -- Dr. Ross
5 was an expert in cancer -- animal cancer bioassays,
6 right?

7 A Yes.

8 MR. LASKER: And this is 13?

9 (Blair Exhibit No. 13 was marked for
10 identification.)

11 BY MR. LASKER:

12 Q And I would like to ask you --

13 MR. MILLER: May I have a copy, please,
14 Counsel?

15 MR. LASKER: Yes. If I can.

16 BY MR. LASKER:

17 Q If I could ask you -- and this is --
18 these are --

19 MR. MILLER: I want to object first.
20 Lack of foundation.

21 MR. LASKER: Understood.

22 BY MR. LASKER:

23 Q And if I could ask you just to take some
24 time to look through, and we will take time and -- to
25 read -- for you to read through this, these notes.

1 And why don't we do that first so you can
2 just familiarize yourself with the notes and -- and
3 what they appear to set forth.

4 A (Perusing document.)

5 Q And just for the record, these notes at
6 the top of the first page state: "March 6, 2015,
7 Plenary General Remarks." And this date would be
8 about halfway through that working group one-week
9 meeting, correct?

10 A Yeah. Yes.

11 Q And the process that appears to be
12 reflected in these notes of presentations to the
13 plenary session by different groups for different
14 substances would be consistent with the process that
15 you told us about a little while ago, right?

16 A Yes.

17 Q So what would happen is the plenary group
18 got together, and the subgroup -- people in the
19 individual subgroups for the individual pesticides
20 would then give presentations to the full working
21 group, correct?

22 A Report where they are in the process,
23 what they were thinking, yes.

24 Q And so these notes would reflect about
25 midway through the working group one-week meeting,

1 correct?

2 A If that time frame fits midway through,
3 I --

4 Q And if I could direct you to the last
5 page of this document and -- actually, let me take
6 you first to the second page of the document,
7 because there's -- there's these different groups
8 identified, Group 1, Group 2, and then Group 3.
9 So -- and Group 4.

10 Am I correct in my understanding that
11 from that Group 1 would be the exposure assessment,
12 Group 2 would be epidemiology, Group 3 would be
13 animal studies -- I'm sorry -- and then Group 4 then
14 would be mechanistic data, correct?

15 A Correct.

16 Q And then the final page of this document,
17 there is the presentation of each of these subgroups
18 as of March 6th, 2015, with respect to glyphosate,
19 correct? Right here (indicating), glyphosate?

20 A The last page?

21 Q Is it the last page? I believe it's the
22 last page of the document. The very bottom of the
23 last page, do you see Glyphosate Group 1, Glyphosate
24 Group 2, Glyphosate Group 3, and Group 4?

25 A Here is the last page of mine.

1 Q Yeah, right here (indicating).

2 Glyphosate, glyphosate, right there (indicating).

3 A Okay.

4 MR. MILLER: Again, I object to the
5 entire line of questions for lack of foundation for
6 the document.

7 BY MR. LASKER:

8 Q So with respect to glyphosate as
9 reflected in these notes, there is a presentation by
10 the -- there is a presentations by the exposure
11 group, by the epidemiology group, by the animal
12 cancer -- animal bioassay group, and the mechanistic
13 group, Groups 1 through 4, correct?

14 A Yes.

15 Q And Group 2 is your group, the
16 epidemiology group, correct?

17 A Yes.

18 Q And the notes here state: "Glyphosate,
19 negative non-Hodgkin lymphoma. Case-control
20 glyphosate," arrow, "non-Hodgkin lymphoma. AHS,
21 negative data."

22 Is this consistent with your recollection
23 of the epidemiology working group's presentation of
24 the data on glyphosate and non-Hodgkin lymphoma?

25 A Yeah, roughly so. The case -- there were

1 case-control studies were positive and AHS was
2 negative, yeah.

3 Q For Group 3, for the subgroup that was
4 responsible for looking at the animal data for
5 glyphosate and cancer, the determination was that
6 that evidence was limited to inadequate, correct?

7 A I -- that is what it says. I actually
8 don't remember.

9 Q And so you -- sitting here today, can you
10 exclude the possibility that the animal toxicology
11 subgroup of IARC determined that the animal data
12 associating glyphosate with cancer was limited to
13 inadequate?

14 A No.

15 Q Do you recall what happened from the
16 time of this initial plenary session in March -- on
17 March 6, 2015, through to the end of the working
18 group that led to the change of the evaluation of the
19 animal data from limited or inadequate to strong?

20 MR. MILLER: Object to the form of the
21 question.

22 THE WITNESS: Well, only in a sense that
23 from sort of preliminary discussion where things are,
24 then the subgroups go back and -- and look and
25 evaluate and discuss, and that's what happened. I

1 was not in the subgroup, so I have no idea what the
2 discussion was.

3 BY MR. LASKER:

4 Q So sometime after this initial -- this
5 plenary session on March 6, 2015, something happened
6 over the next few days that led the subgroup to
7 change its evaluation of the animal data with respect
8 to glyphosate. Is that fair to say?

9 A You know, I'm not even sure I can say
10 that, because what this says is "limited to
11 inadequate." So if note-taking is messy, it could be
12 limited or inadequate. Now it's a choice. So they
13 haven't chosen. I have no idea. I really don't
14 remember what went on at that time, other than this
15 is saying they're exactly unsure where to put it.
16 And I was not privy to discussions of that group at
17 that time. So...

18 Q You are aware that the ultimate
19 determination that appears in the final monograph is
20 that the animal data was strong. Correct?

21 A Yeah.

22 Q And in fact, if the animal -- if the
23 ultimate determination that the animal data was
24 either limited or inadequate, the full working group
25 would not have reached the determination that

1 glyphosate was a probable carcinogen, correct?

2 MR. MILLER: Object to the form of the
3 question.

4 THE WITNESS: Probably not.

5 BY MR. LASKER:

6 Q In fact, with that analysis and that
7 evaluation of the animal data and the conclusion of
8 your subgroup that the epidemiology data was limited,
9 the highest classification that IARC working group
10 could have come to is that glyphosate is a
11 possible --

12 A That's correct.

13 Q -- carcinogen, right?

14 And in fact, with inadequate animal data,
15 the IARC working group may have concluded that the
16 size of the whole was inadequate to reach
17 determination, and it would be a Group 3 substance,
18 correct?

19 A They could have concluded that, yes.

20 Q And you discussed earlier that pursuant
21 to the preamble for IARC, IARC only considers
22 scientific literature that is peer-reviewed or
23 made-publicly-available regulatory documents; is that
24 correct?

25 A Not just regulatory. It's peer reviewed

1 or publicly available is the key thing.

2 Q Understood. Prior to Monograph 112 --
3 the Monograph 112 working group meeting, you were
4 aware of unpublished epidemiological data regarding
5 glyphosate and hematopoietic cancers, correct?

6 A Well, I'm hesitating because it means
7 were we working on the pooled analysis at that time,
8 which I think was probably true.

9 Q Okay. And, in fact, we have some
10 documents on that that I will show you about that.

11 So we -- you had some testimony earlier
12 in question -- response to questions from Mr. Miller
13 about the North American Pooled Project, correct?

14 A Yes.

15 Q That is a study that is pooling data that
16 has been previously used for the Canadian McDuffie --
17 McDuffie study and the U.S. studies in that 2003
18 case-control study in the United States, correct?

19 A It's three different case-control studies
20 in the United States.

21 Q Right. Yeah. So all of those studies
22 were combined for the North American Pooled Project
23 in this pooled analysis, correct?

24 A Yes.

25 Q And that was De Roos 2003 was the --

1 A De Roos was the pooling of the American,
2 the U.S. studies, and they were then pooled with the
3 Canadian studies.

4 Q So let me mark as Exhibit 13 -- 14. I'm
5 as good as Mr. Miller at this.

6 MR. MILLER: It's a high compliment.

7 MR. LASKER: I have to count the double
8 digits. You were on the single digits. So I don't
9 know. It's a little harder when you have to take off
10 your shoe.

11 (Blair Exhibit No. 14 was marked for
12 identification.)

13 BY MR. LASKER:

14 Q And this is a series of e-mails that
15 we -- that you provided to us from your files.

16 And if -- am I correct that these are
17 e-mails discussing some of the analyses that were
18 being conducted for the North American Pooled Project
19 in October of 2014?

20 A It looks like it, yeah.

21 Q So this would have been prior to the IARC
22 working group meeting, which obviously was in March
23 of 2015.

24 A Right.

25 Q Correct. In these e-mails, Dr. Pahwa --

1 who is Dr. Pahwa?

2 A He's a scientist in Canada.

3 Q Is that a he or a she?

4 A A she.

5 Q And she is an epidemiologist like
6 yourself?

7 A Yes.

8 Q And Dr. Pahwa and you are discussing the
9 epidemial -- epidemiologic analysis that was being
10 discussed as part of the North American Pooled
11 Project in these e-mails, correct?

12 A Correct.

13 Q And in her October 23rd e-mail to you and
14 others, I guess these -- am I correct these other
15 individuals are other epidemiologists who are part of
16 the North American Pooled Project study?

17 A Correct.

18 Q In this October 23rd e-mail, Dr. Pahwa
19 provides a summary of a meeting you guys had on
20 October 20 in which you discussed in part the
21 possibility of getting some -- I will focus this
22 because it's getting out of focus.

23 Dr. Pahwa is recounting a discussion that
24 you had on October 20 about the possibility of
25 getting some NAPP data on glyphosate published in

1 time for consideration by the Monograph 112 working
2 group, correct?

3 A Yes.

4 Q And during this meeting, you explained
5 your role on the Monograph 112 working group and the
6 deadline for getting data published for consideration
7 by the working group in its evaluation of glyphosate,
8 correct?

9 A Well, is it in here somewhere?

10 Q Yes.

11 A You're saying --

12 Q I'm sorry. It's the final bullet on the
13 first page, and it's highlighted on the document, but
14 it starts: "Aaron will be" -- the final bullet.

15 A Okay. Closing date. All right. Yes.

16 Q "Aaron will be on the IARC" --

17 A Yeah.

18 Q -- "Monograph 112 working group on
19 March 3rd to 10 to help evaluate malathion,
20 parathion" --

21 A Yeah, okay.

22 Q -- "diazinon, glyphosate," et cetera.

23 "The closing date for data is February 3rd. Manisha
24 has agreed to lead an analysis of glyphosate and NHL,
25 MM and HL risks. She will submit her proposal to the

1 NAPP executive committee by October 24th. Once
2 approved, a progress check will be done in a month to
3 determine if it's feasible to meet the February 3rd
4 deadline. NHL is the priority cancer site."

5 You see that?

6 A Yeah.

7 Q And in your e-mail back to Manisha, you
8 state: "Let me know if I can help in trying to meet
9 the IARC manuscript deadline." Correct?

10 A Yeah.

11 Q So you were -- not only were you the
12 chair of the working group, but in the months leading
13 up to the working group, you were involved in
14 investigating some data that might inform the
15 decision of the working group but only if it was
16 published, correct?

17 A Yes.

18 Q Now, let me mark the next document of
19 mine.

20 (Blair Exhibit No. 15 as marked for
21 identification.)

22 BY MR. LASKER:

23 Q And can you -- am I correct these are
24 some further e-mails between you and other
25 individuals, investigators for the North American

1 Pooled Project, presenting some analysis of the data
2 with respect to glyphosate and cancer risks, correct?

3 A Well, I can clearly read the names, so
4 it's people in the North American Pooled Project.
5 Yes, okay. Finally, I see glyphosate, so it appears
6 to be so, yes.

7 Q And there are a series of communications
8 reflected in this document between you and other NAPP
9 investigators about, say, for certain analyses of
10 glyphosate that could be published in time for the
11 IARC working group deliberations, correct?

12 A I take your word for it. I --

13 Q Well, there is data on this -- there's
14 data on this document with respect --

15 A I'm not disagreeing. I just mean you
16 handed this to me, and these are e-mails of years
17 ago, and you're saying this is correct. I'm just
18 saying if it's in the document, I agree.

19 Q Okay. Well, just to be clear, this is an
20 e-mail that was sent to you -- and these e-mails were
21 sent to you in October of 2014, roughly four,
22 four-and-a-half months before the IARC working group
23 meeting, correct?

24 A Correct.

25 Q And these e-mails contain analyses of the

1 North American Pooled Project data with respect to
2 glyphosate, and in this case multiple myeloma,
3 correct?

4 A Well, at least -- yes.

5 Q And if you could, because this is the way
6 e-mails are, they always work this way when you print
7 them out, they don't go in chronological order so
8 it's hard to read them.

9 But if I could ask you to turn to the
10 very last page, which is the first e-mail in this
11 chain on October 27, 2014, from Dr. Pahwa, it starts:
12 "Hi, John, Shelly and Laura." Do you see that?

13 A Yeah.

14 Q Now, in this -- on October 27 -- it's not
15 focusing, so let me just read it, what the e-mail
16 states.

17 Dr. Pahwa is discussing -- states: "I
18 have prepared a research proposal for assessing
19 glyphosate exposure and NHL risk in the NAPP. While
20 we had discussed looking at glyphosate exposure and
21 the risks of non-Hodgkin lymphoma, multiple myeloma
22 and Hodgkin lymphoma in the NAPP, I thought to start
23 off with non-Hodgkin lymphoma since it has been
24 identified as a priority cancer type in general and
25 has the largest sample size compared to the other

1 cancer types."

2 Correct?

3 A You say this is the last page of this
4 document you handed me?

5 Q Yes, the last page -- Dr. Pahwa is
6 sending around a proposal for assessing glyphosate
7 exposure in non-Hodgkin's lymphoma risk, correct?

8 A All right, here it is. You -- I just
9 couldn't see this "I have prepared," but it's in a
10 couple of words. Okay.

11 Q Right.

12 A All right.

13 Q So Dr. Pahwa, on October 27th, 2014, she
14 sends around a proposal for assessing glyphosate
15 exposure and non-Hodgkin lymphoma in the NAPP data,
16 correct?

17 A Yes.

18 Q Now, in response to her e-mail, and again
19 we have to go backwards in time, but Dr. Harris -- so
20 it's on the bottom of the second to the last page,
21 the e-mail that responds to Dr. Pahwa. In response,
22 Dr. Harris, another NAPP investigator, suggests
23 extending the analysis to include other cancers,
24 correct?

25 A Okay. Yes.

1 Q And then in response to Dr. Harris's
2 e-mail, another NAPP investigator, Dr. Freeman, notes
3 that there may already have been an investigation of
4 the NAPP data to determine whether there was an
5 association between glyphosate and multiple myeloma,
6 correct?

7 A So tell me your interpretation of this
8 sentence again.

9 Q That Dr. Beane-Freeman in the e-mail was
10 asking whether or not -- hey, haven't we already
11 looked at the NAPP data on glyphosate to determine if
12 there is an association with multiple myeloma,
13 correct? That's her question.

14 A Yes. Yes.

15 Q And then Dr. Pahwa comes back and says,
16 You're right, we've already done this, but I'm not
17 sure what we found. Correct?

18 A Yes.

19 Q And then Dr. Freeman in her e-mail, which
20 is on the middle of this page, on October 28th, 2014,
21 at 10:54, suggests that the group of NAPP investors,
22 including yourself, have, quote: A strategic
23 decision about whether to include multiple myeloma in
24 the paper that was being considered for publication
25 in time for the IARC Monograph review of glyphosate,

1 correct?

2 A Yes.

3 Q We're not going to read that, but
4 Dr. Freeman raises two factors for consideration:
5 How far along the analysis is of glyphosate and
6 multiple myeloma from the NAPP data; and whether
7 there was, quote, any hint of an association, end
8 quote. Correct?

9 A Yes.

10 Q And she states that the answers to those
11 questions and probably others might affect how we
12 think about the question, correct?

13 A Yes.

14 Q So the NAPP investigators, including
15 yourself, wanted to find out first whether there was,
16 quote, any hint of an association between glyphosate
17 and multiple myeloma before deciding whether to make
18 that data available for use in the IARC review,
19 correct?

20 A Whether to complete the analysis.

21 Q In response to Dr. Freeman's e-mail,
22 Dr. Harris took a look at the analysis that had been
23 conducted from the North American Pooled Project data
24 regarding glyphosate and multiple myeloma, correct?

25 A Where -- where is this? So I see --

1 Q The first -- the first page now, the
2 final e-mail, it's from Dr. Harris.

3 A Okay.

4 Q And she is going through --

5 A Okay.

6 Q -- and saying, Yes, we've done this
7 analysis, and she presents the data from the North
8 American Pooled Project on glyphosate and multiple
9 myeloma, correct?

10 A Okay.

11 Q Correct?

12 A Yes.

13 Q Dr. Harris reports back to the group that
14 the North American Pooled Project data did not show
15 an elevated risk for multiple myeloma associated with
16 glyphosate, correct?

17 A Yes.

18 Q The adjusted odds ratio for multiple
19 myeloma for ever and never use of glyphosate was 1.23
20 with confidence intervals of 0.86 to 1.76, correct?

21 A Yes.

22 Q That's what epidemiologists refer to as a
23 null finding, correct?

24 A No, that's not what they refer to as a
25 null finding.

1 Q Not the --

2 A That's what they refer to as an excess
3 that isn't statistically significant.

4 Q A nonstatistically significant finding,
5 correct?

6 A Nonstatistically significant excess.

7 Q Okay. So there was no statistically
8 significant association between glyphosate exposure
9 and multiple myeloma in the NAPP data, correct?

10 A Correct.

11 Q Dr. Harris also reports results with
12 proxy respondents excluded, correct? The last three
13 columns in her table?

14 A Yes.

15 Q A proxy is a next of kin or a spouse, not
16 the actual individual who had the potential exposure,
17 correct?

18 A Correct.

19 Q And generally speaking, self-reported
20 data of the individual who had the exposure is
21 considered more reliable than proxy reported exposure
22 data, correct?

23 A Correct.

24 Q When proxy respondents were excluded, the
25 NAP data -- NAPP data showed that the odds ratio for

1 ever/never use of glyphosate and multiple myeloma was
2 0.97 with confidence intervals of 0.63 to 1.48,
3 correct?

4 A Right.

5 Q So using the most reliable exposure data,
6 there was no suggestion whatsoever of any increased
7 risk of multiple myeloma with glyphosate exposure,
8 correct?

9 A Correct.

10 Q So that was a null finding, correct?

11 A Yes.

12 Q Now, Dr. Harris notes that they could
13 have a draft of this paper, including this glyphosate
14 analysis, available for review in the next few weeks
15 and that a paper could be submitted for publication
16 early in the new year or before, correct?

17 And that's the very beginning of her
18 e-mail, the second paragraph, the last sentence: "I
19 expect you will have a draft to review in the next
20 few weeks, and the paper could be submitted" --

21 A Well, if you're reading it, I don't find
22 it, but okay, fine.

23 Q Well, no, I want you to be able to see
24 it. In the very top of the e-mail, the first line
25 is: "Hi, everyone. Thanks all for weighing in on

1 this." Correct?

2 A Yeah.

3 Q And then the second paragraph, the last
4 sentence, starting at the end of line 2: "I expect
5 we will have a draft to review in the next few weeks
6 and a paper could be submitted early in the new year
7 or before." Correct?

8 A Okay. Yes.

9 Q And you were copied on obviously this
10 e-mail that sets forth the NAPP data for glyphosate
11 and multiple myeloma, correct?

12 A Correct.

13 Q But despite the fact that you had this
14 data and it was in a form that could be submitted for
15 review and submitted for publication in time for the
16 IARC Monograph, this data was not in fact published
17 in time for the IARC Monograph 112 review, was it?

18 A I think not.

19 Q In fact, the data was not published until
20 June of 2016, some twenty months later and well after
21 the IARC working group had conducted its review of
22 glyphosate, correct?

23 A And I don't think it was submitted to --
24 it can be submitted to IARC if it's accepted for
25 publication, but I don't think this was. So I think

1 your answer -- your comments are correct.

2 Q Now, the June 2000 --

3 A And I just want to make the point that it
4 doesn't have to be published, it has to be accepted,
5 which means it's available from the journal.

6 Q Good clarification. So if you had -- you
7 and the other NAPP investigators had submitted this
8 data, it could have been considered by the IARC
9 working group even if it hadn't been published yet?

10 A If it had been accepted by the journal
11 and up on the journal's website, which happens to --
12 actually, one of the papers I got is the website
13 version. It is the same thing as the published one.

14 Q But you guys didn't -- you guys didn't do
15 that. You didn't get this data in a position that
16 the IARC working group could consider it, correct?

17 A Correct.

18 Q And -- but you were obviously aware of
19 this data during the IARC working group
20 deliberations, right?

21 A Yes.

22 Q Did you mention the NAPP findings of no
23 association between glyphosate and multiple myeloma
24 to any of your fellow working group members during
25 the Monograph 112 deliberations?

1 A I don't think so. But I don't recall for
2 sure. It wasn't published.

3 Q Just to be clear, it wasn't published
4 because you guys decided not to publish it, correct?

5 A Because we didn't go through the process
6 to get everything ready to send it off for
7 publication. It's still not a sure thing, you
8 understand. You make it sound like you decide, then
9 it's done for sure. No, that's not the case. You
10 work on it, you look at it, you revise, you send it
11 to the journal to get reviews back from authors of --
12 the reviewers at the journal and so forth, and all
13 that goes into the decision of whether you can make
14 it, and we didn't do that. That is correct.

15 Q Dr. Harris in October of 2014 is
16 suggesting, Hey, let's get this -- let's submit this
17 to a journal and get it published so the IARC working
18 group can consider it, but you didn't do that,
19 correct?

20 A Did not do that.

21 Q Now, Dr. Pahwa had also discussed in
22 these e-mails that she was looking at the North
23 American Pooled Project data with respect to
24 glyphosate and non-Hodgkin's lymphoma, correct?

25 A Right.

1 Q And the NAPP investigators did not
2 publish any findings with respect to glyphosate and
3 non-Hodgkin's lymphoma prior to the monograph one --
4 IARC 112 meeting in March 2015, correct?

5 A I think that's correct, yeah.

6 Q Now, you have presented -- the NAPP
7 investigators have presented data about glyphosate
8 and non-Hodgkin's lymphoma at various scientific
9 meetings, correct?

10 A At least two, I think.

11 Q Okay. Let me ask you about the first of
12 those. What I believe is the first, and correct me
13 if I'm wrong.

14 (Blair Exhibit No. 16 was marked for
15 identification.)

16 MR. MILLER: 16?

17 MR. LASKER: 16.

18 BY MR. LASKER:

19 Q And, Dr. Blair, this is a presentation
20 that the North American Pooled project investigators,
21 including yourself, made with respect to what the
22 NAPP data showed for glyphosate and non-Hodgkin
23 lymphoma, correct?

24 A Yeah. Yes.

25 Q And this was presented on June 2015,

1 which was after the IARC -- a few months after the
2 IARC Monograph 112 meeting, correct?

3 A Right.

4 Q Now, if I can direct you to the first
5 data table in this log deck, and it's a few pages in,
6 and specifically -- so it would be this table right
7 here (indicating). Okay. We will put it up on the
8 screen.

9 MR. LASKER: Help me focus this. Zoom
10 out, actually.

11 (Counsel conferring.)

12 BY MR. LASKER:

13 Q So the -- this table presents data on
14 what the North American Pooled Project had found with
15 respect to glyphosate use and non-Hodgkin lymphoma
16 risks, correct?

17 A Yes.

18 Q And the first -- the overall odds ratio
19 for ever/never use of glyphosate and non-Hodgkin
20 lymphoma in the North American Pooled Project is 1.22
21 with confidence intervals of 0.91 to 1.63, correct?

22 A Correct.

23 Q So this is basically the same finding
24 that the NAPP had made with respect to multiple
25 myeloma back in October of 2014, almost exact same

1 odds ratios, not statistically significant, correct?

2 A The odds ratio that are similar, right?

3 Q Yes.

4 A Is that your point?

5 Q Yes.

6 A Yes.

7 Q And not statistically significant,
8 correct?

9 A Yes.

10 Q And just like with the multiple myeloma
11 analysis we looked at before, we also have an
12 analysis that breaks out proxies and looks only at
13 the most reliable exposure data, and I think that is
14 the table that looks like this (indicating). I
15 apologize, there's not -- there are no page numbers
16 here.

17 A Okay.

18 Q But in this analysis, proxy by
19 self-respondents, just as with multiple myeloma
20 finding, when you looked at the NAPP data and you
21 looked at the most -- the more reliable
22 self-respondent only data, you have an odds ratio for
23 non-Hodgkin lymphoma and glyphosate in the North
24 American Pooled Project of 1.04, with a confidence
25 interval of 0.75 to 1.45, correct?

1 A Correct.

2 Q So, again, this is a null finding from
3 the North American Pooled Project with respect to
4 whether or not glyphosate is associated with
5 non-Hodgkin lymphoma, correct?

6 A Yes.

7 Q Did you mention these North American
8 Pooled Project findings of no association between
9 glyphosate and non-Hodgkin lymphoma to any of your
10 fellow working group members during the Monograph 112
11 deliberations?

12 A I don't think so. And I want to say,
13 actually I don't know whether these were available or
14 not. So you -- I mean whether I even knew about
15 them, because the analysis of multiple myeloma was
16 going on, but I don't know whether this one was done
17 or not. If it was, I'm sure you're going to show me,
18 but I don't know whether this one was done or not.

19 Q Well, you certainly knew that you had the
20 ability to look at that. You were --

21 A Well, that's a different thing than
22 knowing what it is. We can look at a lot of things.

23 Q So in October of 2014, though, you and
24 Dr. Pahwa and the others were talking about, Hey,
25 let's look at the data from our North American Pooled

1 Project with respect to glyphosate and non-Hodgkin
2 lymphoma, correct?

3 A Yes.

4 Q Is it your testimony that you in fact,
5 though, then didn't look at that data?

6 A I -- there were a bunch of things going
7 on, and they were already analyzing, and I just don't
8 remember the sequence that got to it. You make it
9 sound like as if you can decide to look at it, and
10 just it's over and done. These things take months
11 and months and months. And so if you haven't looked
12 at anything at all, the odds aren't good that you can
13 complete it beforehand, before some date. And I
14 think that was part of the thinking about non-Hodgkin
15 lymphoma, that we couldn't get it ready in time.

16 Q You haven't published your findings with
17 respect to glyphosate and non-Hodgkin lymphoma to
18 this day, have you?

19 A No.

20 Q It's now three years later, correct?

21 A Scientific research takes time.

22 Q The -- and because of the fact that you
23 had not published these results, including this
24 finding of -- a null finding in the North American
25 Pooled Project for glyphosate and non-Hodgkin

1 lymphoma, that information was not available to IARC.

2 Correct?

3 A No.

4 Q It was not available, correct?

5 A No.

6 Q I'm going to restate that.

7 It is correct that IARC did not have this
8 information, right? Yes, IARC didn't have it?

9 A IARC did not have it.

10 Q IARC didn't have it.

11 A No.

12 Q And the various regulatory agencies,
13 including the EPA and regulatory agencies around the
14 world, also have not had this information that the --
15 that you've been aware of with respect to non-Hodgkin
16 lymphoma?

17 A Yeah, except -- so, okay, I see you're
18 pushing this hard now. So what if we look at
19 frequency of days per year of use?

20 Q Okay.

21 A So now when you look at the people who
22 used it more, they do have an excess of non-Hodgkin's
23 lymphoma among the self-respondents.

24 Q That -- now, that's interesting you
25 picked that one out. Why did you not look at

1 duration or lifetime days?

2 A There's a lot --

3 Q There's a lot of analyses. You picked
4 that one.

5 A There are a lot of them. You look at a
6 lot of different things and you have to try to
7 evaluate the whole thing. I picked out one and you
8 picked out one.

9 Q Okay. But you didn't present any of the
10 data so that the IARC working group could look --

11 A Because it wasn't -- I don't think it was
12 available at the IARC working group time. If it --

13 Q But it was available to you.

14 A I'm not sure it was available to me. If
15 you have information to show it's available, well,
16 tell me, but I don't it was available. I remember
17 this coming after the IARC working group stuff.

18 Q We just looked at October 28th, 2014
19 e-mails where you or the NAPP investigators were
20 discussing --

21 A What to do. They didn't -- I don't
22 remember it saying we had done it and this
23 information was available. That's the issue.

24 Q Now, so that I understand, the NAPP
25 analysis was based upon data that was already

1 available to the IARC working group because it was
2 pooling --

3 A Yes.

4 Q -- the McDuffie case report and the
5 De Roos 2003 report.

6 A Correct.

7 Q Okay. Now, during the IARC Monograph --
8 during the IARC Monograph 112 deliberations, you were
9 also -- strike that.

10 During the IARC Monograph 112
11 deliberations, you were also aware of unpublished
12 data on glyphosate and non-Hodgkin lymphoma from the
13 Agricultural Health Study, correct?

14 A You know, I -- I don't remember.

15 Q Okay. Well, we will go through this, but
16 let me first refresh and let the jury understand
17 because during Mr. Miller's questioning you didn't
18 have the opportunity to talk about the findings from
19 the Agricultural Health Study that has been published
20 on glyphosate and non-Hodgkin lymphoma.

21 So let me provide for you, and we will
22 mark this as Defense Exhibit 16 -- 17. 17. Sorry.

23 (Blair Exhibit No. 17 was marked for
24 identification.)

25 MR. MILLER: Thank you. Exhibit 17.

1 MR. LASKER: Exhibit 17.

2 MR. MILLER: We have a rule in the law,
3 Doctor, it's called hungry break.

4 MR. LASKER: Oh, you want to take a
5 break?

6 MR. MILLER: Whatever. It's not up to
7 me. It's up to you, Doctor. You're the witness. So
8 you can keep going or you can take a break. It's up
9 to you.

10 THE WITNESS: It would be nice to take a
11 break. It's sort of a physiological position. So is
12 that --

13 MR. LASKER: Okay. That is -- we can
14 take a break whenever you want. I just don't know if
15 you mean now or later. Whenever you want to, just
16 let me know.

17 THE WITNESS: I have no clue.

18 MR. LASKER: You have no clue whether you
19 want to take a break?

20 THE WITNESS: No. I mean --

21 MR. LASKER: Well, we should have -- we
22 should definitely have a lunch break. If you want to
23 take it now, it's up to you.

24 THE WITNESS: Well, you're on a topic
25 now. What I'm trying to find out is, are you going

1 to go on this for a while and then switch to
2 something else? I would prefer to get this done.

3 MR. LASKER: Okay.

4 THE WITNESS: But I don't know that.

5 MR. LASKER: Okay. Well, why --

6 THE WITNESS: Only you know that.

7 MR. LASKER: Okay. Well, why don't we
8 get this done, and then we will switch to something
9 else.

10 THE WITNESS: Okay.

11 MR. LASKER: Okay.

12 BY MR. LASKER:

13 Q So, with respect to the De Roos 2005
14 paper, this is a paper that you were -- a study that
15 you were co-author on, correct?

16 A Yes.

17 Q And this is the cohort study we have been
18 discussing before and the analysis of cancer
19 incidence among glyphosate-exposed pesticide
20 applicators, correct?

21 A Yeah. Yes.

22 Q And if you turn to page 49, the first
23 page actually, on the "Materials and Methods"
24 section, the De Roos 2005 paper was reporting out the
25 findings from the AHS cohort based upon exposure data

1 gathered between 1993 and 1997, and incidence of
2 cancers identified as of December 31st, 2001,
3 correct?

4 A Well, the '93 to '97 is correct. I guess
5 the other is.

6 Q If you read down a little bit further
7 along that same section, you will see --

8 A Yes.

9 Q -- cancers.

10 A Okay. Yes. Okay.

11 Q And if you go to page 51, Table 2, based
12 on this data, De Roos 2005 identified 92 cases of
13 non-Hodgkin lymphoma in farmers and the cohorts who
14 had been -- who had reported exposure to glyphosate,
15 correct?

16 A Yes.

17 Q And De Roos calculated and adjusted risk
18 ratio for ever/never use of glyphosate and
19 non-Hodgkin lymphoma of 1.1 with a confidence
20 interval of 0.7 to 1.9, correct?

21 A Correct.

22 Q Which is showing no statistically
23 significant association, correct?

24 A Yes.

25 Q And De Roos 2005 also presents data on

1 non-Hodgkin lymphoma and glyphosate in association
2 with the duration and intensity of exposure to
3 glyphosate, correct?

4 A Yes.

5 Q That data was presented on page 52,
6 Table 3?

7 A Yes.

8 Q And provides an analysis of 61 cases of
9 non-Hodgkin lymphoma in farmers who had been exposed
10 to glyphosate, correct? Towards the bottom of that
11 chart, the non-Hodgkin lymphoma.

12 A Yes. Yes. Yes.

13 Q And for both -- let me do this so it's
14 not in the -- actually, it's better to put it there.

15 A Which I found it in the table. Now you
16 don't need to.

17 Q For both cumulative exposure days --
18 well, first of all, let me see if I understand this.

19 What is cumulative exposure days in the
20 AHS evaluation?

21 A The number of days per year they say they
22 applied a chemical multiplied by the number of years
23 they said they used it.

24 Q And what is the intensity of exposure?

25 A It's those two factors weighted also by

1 how they use protective equipment and things such as
2 that that would influence exposure.

3 Q So in the De Roos 2005 paper for both
4 cumulative exposure days, which is this data here
5 (indicating), and for intensity weighted exposure
6 dates, which is this data here (indicating), the
7 relative risk for non-Hodgkin lymphoma was below 1.0
8 for higher exposures to glyphosate, correct?

9 A Correct.

10 Q So farmers who had either more days of
11 exposure to glyphosate or had more intense exposure
12 to glyphosate had a high -- had a lower --

13 A Lower.

14 Q -- lower incidence of non-Hodgkin
15 lymphoma than farmers who had not used glyphosate,
16 correct?

17 A That was not statistically significant.

18 Q So this would be a negative association.
19 It wouldn't be a null finding, but it would not be
20 statistically significant, correct?

21 A Correct.

22 Q Okay. And are you aware of some of the
23 discussions that have taken place following the IARC
24 classification of glyphosate about this AHS study and
25 its strengths or weaknesses?

1 A I mean I'm involved in the study, so if
2 the answer is are there -- am I involved in
3 discussions about it, well, yes.

4 Q Okay. Well, let me show you --

5 A But why don't you ask what you're
6 interested in.

7 Q Let me show you specifically -- let me
8 show you specifically a publication by Dr. Portier.
9 I think you mentioned him earlier.

10 You know Dr. Portier, correct?

11 A I do.

12 (Blair Exhibit No. 18 was marked for
13 identification.)

14 BY MR. LASKER:

15 Q And this is Defense Exhibit 18.

16 A You have two things there. Did you --

17 Q Oh, that has highlighting. Thank you.

18 A Actually, you have three things there.

19 MR. MILLER: Three things.

20 BY MR. LASKER:

21 Q Okay. And in this publication,
22 Dr. Portier is -- well, first of all, it's entitled
23 "Differences in carcinogenic evaluation of glyphosate
24 between the IARC -- between the International Agency
25 for Research on Cancer and the European Food Safety

1 Authority," correct?

2 A Yes.

3 Q And in this publication, a variety of
4 individuals are trying to address their views about
5 the differences between what IARC concluded with
6 respect to glyphosate and cancer and what the
7 European Food Safety Authority concluded, correct?

8 A Yes.

9 Q And if we turn to the second page of this
10 commentary, Dr. Portier is talking specifically
11 about -- at the bottom of the first page and then
12 turning over to the second page -- the Agricultural
13 Health Study we were just looking at, the 2005
14 publication, correct?

15 A Okay. Yes.

16 Q And at page 2, on the top of that left
17 column, Dr. Portier writes: "Despite potential
18 advantages of cohort versus case-control studies, the
19 AHS only had 92 NHL cases in the unadjusted analysis
20 as compared to 650 cases in the case-control
21 studies." Correct?

22 A Yes.

23 Q So he is pointing to the fact that
24 there's only 92 NHLs found as of 2005?

25 A Yes.

1 Q He also talks about the fact that the
2 median follow-up time in AHS was 6.7 years, which is
3 unlikely to be long enough to account for cancer
4 latency, correct?

5 A Yes.

6 Q Now, in fact, the 6.7 years of follow-up
7 to which Dr. Portier is referring to is not the
8 amount of time between exposure and cancer, is it?

9 A No.

10 Q In fact, as we discussed earlier, at the
11 time of entry into the Agricultural Health Study, the
12 subject applicators, the farmers, had an average of
13 about 15 years of pesticide use already, correct?

14 A Correct.

15 Q And glyphosates had been on the market
16 since 1974 or about that time. I think Mr. Miller
17 just read something about that in his questioning.
18 Right?

19 A Yeah.

20 Q So on average, by the time the data
21 collected for the 2005 De Roos study was analyzed,
22 the farmers would have had -- more than 20 years had
23 passed from the time of their first exposure to their
24 cancer potentially, correct?

25 A More than twenty years' exposure to what?

1 Q To glyphosate.

2 A Some may have. Right?

3 Q Correct.

4 A Some may have.

5 Q Certainly more than 6.7 years. That's
6 not the correct year to be looking at for how much
7 exposure they had had, correct?

8 A That's the person -- their follow-up
9 time.

10 Q So that was the time from the
11 questionnaire to follow-up, not exposure to
12 follow-up?

13 A Correct.

14 Q So Dr. Portier's comment here in this
15 publication is inaccurate, correct? There is
16 something wrong with it?

17 A In --

18 MR. MILLER: Object to the form of the
19 question, but it says "in addition to median
20 follow-up time."

21 MR. LASKER: You can object. You can't
22 testify. That's what the witness does.

23 THE WITNESS: Well, I -- I'm debating
24 whether to answer your question or give you an
25 epidemiology primer. I think I will just -- the

1 length of time of follow-up has to be from the time
2 you've followed people.

3 BY MR. LASKER:

4 Q Right.

5 A So if a person was exposed to anything 20
6 years before you started the study and died 19 years
7 after -- before you started the study, they wouldn't
8 be in it.

9 Q Understood.

10 A So there is that element in it, but it's
11 correct that 6.7 is not the total amount of time that
12 people would have -- some of the people would have
13 been exposed in this study.

14 Q Well, the -- the median we talked about
15 before for these farmers was that if they had 15
16 years of pesticide use prior to -- at the time of
17 their questionnaire, correct?

18 A 15 years of pesticide use.

19 Q And you had data also on glyphosates,
20 correct?

21 A But, again, it's a matter of how many
22 people started using it and when they started using
23 it.

24 I'm just saying your characterization is
25 not fully descriptive. It goes on in the cohort

1 study. There are staggered times --

2 Q Understood.

3 A -- going on and so forth. People have
4 different amounts, but it could be -- some of them
5 clearly have it more than 6.7 years.

6 Q And we're not -- to be clear, we're not
7 talking about my characterization of the study.
8 We're talking about Dr. Portier's characterization of
9 the study.

10 MR. MILLER: Well, I object and move to
11 strike that.

12 BY MR. LASKER:

13 Q And just so it's clear --

14 MR. MILLER: I just object and move to
15 strike. Dr. Portier's characterization is follow-up,
16 not exposure. You're interchanging those two terms
17 intentionally to mislead, and I object.

18 BY MR. LASKER:

19 Q Just to be clear, the period of 6.7
20 years, which Dr. Portier says is unlikely to account
21 for the cancer latency, is not the period of time
22 from exposure to cancer that was assessed in the
23 non -- in the AHS study, correct?

24 A That's correct. He says it's the median
25 follow-up time.

1 Q Right. So cancer latency, what's
2 important is date of exposure to date of cancer, not
3 date of questionnaire to date of cancer, correct?

4 A Yes, but he says follow-up time, not
5 latency.

6 Q No, he mentions latency right there.
7 That's what he talks about. He says, "Unlikely to be
8 long enough to account for cancer latency," correct?

9 A But he says it's a median follow-up time.

10 Q Correct.

11 A Yeah.

12 Q But just we're clear, the median
13 follow-up time doesn't tell you anything about the
14 period of exposure to cancer. That's relating for --
15 to latency, correct?

16 A Yes.

17 Q Okay. Now, in fact, the AHS has
18 conducted additional analyses of glyphosate following
19 the 2005 paper -- published study with far larger --
20 a far larger number of incidence of NHL cases and
21 longer follow-up, correct?

22 A There is a paper on that?

23 Q AHS has conducted analyses of
24 glyphosate --

25 A Oh, okay. Okay.

1 Q -- following the 2005 publication with a
2 far larger number of NHL cases and a longer
3 follow-up, correct?

4 A I think that's underway, yes.

5 Q Let me mark as next exhibit in line, and
6 I will do this as Exhibit A and B. So 19-A and 19-B.
7 (Blair Exhibit Nos. 19-A and 19-B
8 were marked for identification.)

9 BY MR. LASKER:

10 Q And let me represent that there is a
11 printing date on this that is when this document was
12 printed, somebody -- or maybe for public -- for
13 production, but there is also a date on the document
14 of when it was prepared. So we will have two dates
15 on the document.

16 And this is yours.

17 A Oh, yes. I'm sorry. I was thinking you
18 were talking about an analysis of just glyphosate
19 people, but there is a -- this paper has been
20 published actually for non-Hodgkin's lymphoma.

21 Q Okay. Well, we will talk about that.

22 A Yeah.

23 Q We will talk about what data was
24 published and what data was not published.

25 But this is 19-B. And here you are.

1 So I marked two versions of -- well,
2 first of all, if you could just identify for the
3 record what I've handed you as Exhibit 19-A and 19-B.

4 A Well, they look like documents, probably
5 drafts that were prepared for the study of lymphoma
6 and pesticide use in the Agricultural Health Study.

7 Q And these are drafts dated February 6,
8 2013, and March 15, 2013, correct?

9 A Well, mine says --

10 Q Well, there's a print --

11 A -- December 5th, 2016, and this one is
12 November 30th, 2016.

13 Q And just -- that's why I want to clarify
14 when we talk about -- that's when it was printed out
15 by somebody, that's a Word -- something the Word
16 program does, but if you look at the actual -- in the
17 text --

18 A Oh, okay. Okay. Yes. Yes.

19 Q So these are drafts prepared in February
20 2013 and March of 2013, correct?

21 A Yes.

22 Q And if you look at the February '13 --
23 February 2013 -- strike that.

24 If you look at the February 2013 draft,
25 there is -- in fact, starting on the very first page,

1 a comment on the draft by an AEB, and that would be
2 you, correct? Aaron Blair.

3 A On the first page?

4 Q Well, if you look on the right, you will
5 see these little comment bubbles. And if you look
6 throughout the document, you will see these comment
7 bubbles.

8 A Yes. Yes.

9 Q And these -- this is your comment --
10 these are your comments on the document, correct?

11 A Yeah. Correct.

12 Q And if you look at the March 2013 draft,
13 which is the next document, it also has various
14 comments by you on the publication -- on the draft
15 publication, correct?

16 A Yes.

17 Q Okay. Now, let's -- so it's fair to say
18 that as of March 2013, you had reviewed at least two
19 versions of this draft publication, correct?

20 A Yes.

21 Q Well, let's focus on the March 2013
22 draft. And if I could turn you first to page 6 in
23 the discussion of the study population.

24 A We're at 2000 -- oh, March '13. Okay.
25 Yes, got it.

1 Q So I turn you to page 6.

2 A Six?

3 Q Yes. And this has a discussion of the
4 study population about halfway through, correct?

5 A Yes.

6 Q And now we're looking at all -- I'm
7 sorry, if you look at page 7, all incidence of
8 primary non-Hodgkin lymphoma in the AHS cohort from
9 enrollment through December 31st, 2008, correct? At
10 the very top.

11 A Yes.

12 Q So this study includes an additional
13 seven years of follow-up, an additional seven years
14 of NHL cases beyond those that were reported and
15 published in the De Roos 2005 paper, correct?

16 A Yes.

17 Q And if you look at page 9 of this 2013
18 draft paper, in the second paragraph on that page, it
19 talks about the fact that this study also includes
20 additional exposure data from a follow-up
21 questionnaire.

22 So you have five years of additional
23 exposure data that was not available for the 2005
24 study that was published, correct?

25 A Correct.

1 Q Then the 2013 paper -- or 2013 study, I'm
2 sorry, that includes a series of tables in the back
3 that reports on the findings of various analyses of
4 different exposures and the risks of non-Hodgkin
5 lymphoma, correct? There's a whole bunch of tables
6 back here.

7 A Okay.

8 Q Data tables?

9 A Yeah.

10 Q So how are these data tables prepared?

11 A I don't understand your question.

12 Q Okay, let me strike that.

13 This is the data that was available to
14 the Agricultural Health Study and was to be presented
15 in this publication, correct?

16 A Yes.

17 Q And this is -- these tables are showing
18 the relative risks of non-Hodgkin lymphoma in farmers
19 with various exposures based upon the additional data
20 that had been generated in the AHS study, correct?

21 A Correct.

22 Q Now, I've looked through these tables,
23 and the 2013 study does not appear to contain data on
24 ever/never use. But I would like to have you turn to
25 page 34.

1 And on page -- on page 34 of the
2 document, we have the AHS updated data on glyphosate
3 and non-Hodgkin lymphoma, correct?

4 A Yes.

5 Q And we have -- this is the data for both
6 duration and intensity-weighted duration of exposure
7 to glyphosate, correct?

8 A Well, I think that's the case. I have to
9 look at the -- not duration but total days of
10 exposure and intensity-weighted days of exposure.

11 Q Okay. Well, isn't total days of exposure
12 the duration of exposure?

13 A Not in normal epidemiologic parlance.

14 Q Okay.

15 A Duration is often measured in years, and
16 that can be different than the total number of days.

17 Q But in the 2005 De Roos paper, De Roos
18 was -- 2005 De Roos paper, duration was number of
19 days and --

20 A Yes. And this is the same. It's the
21 same.

22 Q It's the same analysis --

23 A Same analysis.

24 Q -- as the 2005 exposure -- 2005
25 publication, except in this analysis we have a

1 category also of no exposure, correct?

2 A Yes.

3 Q And the De Roos 2005 analysis that we
4 looked at was based upon -- the exposure analysis was
5 based upon 61 cases of non-Hodgkin lymphoma in
6 farmers who had reported exposure to glyphosate,
7 correct?

8 A That sounds right to me.

9 Q The 2013 analysis includes data on 250
10 NHL cases among farmers who had reported exposure to
11 glyphosate, correct? Just add up the three rows of
12 exposure, about 250?

13 A About. I was looking, and say, Well,
14 it's not going to add to 250, but it's about 250.
15 I'm not quibbling.

16 Q I think it actually is, but it's about
17 250. That's fine.

18 And so this 2013 cohort study has results
19 for glyphosate and non-Hodgkin lymphoma -- I'm sorry.
20 Strike that.

21 This 2013 cohort study with results for
22 glyphosate and non-Hodgkin lymphoma is more than four
23 times larger than the De Roos 2005 study, correct?

24 A Yes.

25 Q It's gone from 61 -- or 62 to 250 cases.

1 A Yes.

2 Q And the confidence intervals for the
3 various analyses of NHL based upon the levels of
4 glyphosate exposure, because it's a larger study, are
5 much tighter than the confidence intervals were for
6 De Roos 2005, correct?

7 A Correct.

8 Q Because this study now has more power,
9 correct?

10 A Correct.

11 Q So this 2013 cohort study finds no
12 association -- no evidence of association between
13 exposure to glyphosate and non-Hodgkin lymphoma,
14 correct?

15 A Correct.

16 Q And based upon the data that's set forth
17 here, if you look at individuals who had no exposure
18 to glyphosate, which is that first row, and you look
19 at the three categories of individuals who did have
20 exposure to glyphosate, if we were to do an
21 ever/never analysis of glyphosate and non-Hodgkin
22 lymphoma, the -- the relative risk here would be
23 something below 1.0, correct? About 0.9?

24 A That's a reasonable guess, I think, yes.

25 Q So that means that the incidence of

1 non-Hodgkin lymphoma in farmers exposed to glyphosate
2 in the 2013 cohort study was lower than the incidence
3 of non-Hodgkin lymphoma in farmers who were not
4 exposed to glyphosate, correct?

5 A But not statistically significant.

6 Q So it's a negative association, but
7 statistically --

8 A Not statistically significant.

9 Q Not a null result but a negative
10 association.

11 A Correct.

12 Q And the applicators in the highest levels
13 of exposure to glyphosate, both by lifetime days and
14 intensity-weighted lifetime days, had the exact same
15 incidence of non-Hodgkin lymphoma as applicators with
16 no exposure to glyphosate whatsoever, correct?

17 A Correct.

18 Q So for the highest -- for each of these
19 measures of exposure, for the relative risk for
20 non-Hodgkin lymphoma at the highest level of exposure
21 to glyphosate as compared to not exposed was a
22 completely null result, correct?

23 A Yes.

24 Q The median lifetime use in days for the
25 highest exposure group now is 172 days, correct?

1 A Where do I see that?

2 Q Right here (indicating). The median days
3 in the highest exposure group, 173 days. I
4 apologize.

5 So the highest -- the highest exposure
6 group for duration, we're looking at farmers with an
7 average of 173 days of exposure to glyphosate,
8 correct?

9 A I must be on the wrong table then.

10 Q If you look at the first column --

11 A Well, it's just not the ones I had.
12 Maybe I've got the --

13 Q Are you on page 34?

14 A Page 34.

15 Q If you --

16 A The March 15th document.

17 Q Yep.

18 A Right? Glyphosate --

19 Q We have none, low, medium. Right here
20 (indicating). You have the numbers in the brackets,
21 right? Those numbers in the brackets are the median
22 days of exposure, correct? Right here (indicating).

23 A Oh, 173. I'm sorry. I was hearing
24 something else. It was there. I thought it's not
25 the same number. Yeah, okay. Yes.

1 Q So the median lifetime days of glyphosate
2 exposure in this high exposure group where there was
3 no finding of any increased risk of non-Hodgkin
4 lymphoma whatsoever was 173 days, correct?

5 A Well, again, now I'm quibbling, because
6 we've got two categories --

7 Q We have three.

8 A One is cumulative days, and the other is
9 the intensity-weighted one. And so I think you're
10 right that the judgment is this is the days, but that
11 finding applies all across that row, and that can't
12 be.

13 Q Okay.

14 A You know, but I think you're right, I
15 think this is cumulative days, yes.

16 Q Got it. Okay.

17 A That's not your fault. That's --

18 Q And -- yes.

19 A -- the paper's fault.

20 Q And because of the fact that we now have
21 longer follow-up, the exposure levels at each of
22 these three categories of low, medium and high
23 exposure to glyphosate also are much higher than the
24 exposure levels in the corresponding analysis in the
25 2005 published paper, correct?

1 A The cumulative exposure is higher.

2 Q Now, these findings for glyphosate have
3 never been published, have they?

4 A No. They haven't been published.

5 Q These findings, the AHS updated findings
6 for glyphosate and non-Hodgkin lymphoma were not
7 considered by IARC in its review of glyphosate,
8 correct?

9 A No.

10 Q These findings also have not been
11 available to any of the regulatory agencies that have
12 been conducting reviews of glyphosate and cancer,
13 correct?

14 A Correct.

15 Q Now, this obviously is data that you had
16 in your possession and were aware of at the time of
17 the IARC working group meeting, which is two years
18 after you reviewed this paper, correct?

19 A Say again.

20 Q Well, you reviewed this data in
21 March 2013, correct?

22 A Yes.

23 Q And then in March 2015, you were the
24 chair of the IARC working group that was considering
25 the question of --

1 A Yes.

2 Q -- what the epidemiological data shows
3 with respect to --

4 A Yeah, right.

5 Q -- glyphosate and non-Hodgkin --

6 A Right.

7 Q So you obviously knew about --

8 THE REPORTER: Excuse me. I need you to
9 finish that question, please.

10 BY MR. LASKER:

11 Q I'll say it again. So in -- let me
12 rephrase.

13 At the time that you were the chair of
14 the IARC working group and a member of the
15 epidemiology subgroup that was looking at the
16 evidence of whether or not glyphosate was associated
17 with non-Hodgkin lymphoma, you were aware of this
18 updated data of a study four times larger than the
19 published 2005 paper with respect to glyphosate and
20 non-Hodgkin lymphoma, correct?

21 A That there were analyses of such data,
22 but no published studies.

23 Q Correct. But you were aware of what the
24 data showed, correct?

25 A Yes. But no published studies.

1 Q Right. And did you alert any of your
2 fellow working group members or any of the other
3 members of the subgroup on epidemiology at IARC about
4 the fact that this much larger AHS cohort study with
5 larger follow -- a larger time of follow-up and
6 higher levels of exposure had been conducted?

7 A No.

8 Q Now, the IARC working group also cited to
9 a meta-analysis that IARC had prepared of the
10 epidemiological studies regarding glyphosate and
11 non-Hodgkin lymphoma. And Mr. Miller asked you about
12 that earlier today. Correct?

13 A Yes.

14 Q Well, let me show you a copy of that
15 meta-analysis, if I might.

16 (Blair Exhibit No. 20 was marked for
17 identification.)

18 BY MR. LASKER:

19 Q This is Defense Exhibit 20.

20 And also let me just -- we have -- do you
21 have the monograph working group which was a
22 plaintiffs' exhibit? Oh, you have that. Okay.

23 This was marked previously as a
24 plaintiffs' exhibit, I just don't remember what
25 number it was, but this is the monograph.

1 MR. LASKER: Do you remember what number
2 this is, Mr. Miller?

3 MR. MILLER: This should be 20.

4 MR. LASKER: Four. Plaintiffs' 4? No,
5 this is Plaintiffs' 4. It's the same -- you guys
6 marked this.

7 MR. MILLER: Oh, I'm sorry.

8 MR. LASKER: I'm talking about the --

9 MR. MILLER: Well, we need to be more
10 precise. Okay. 20 was the last exhibit you handed
11 me. Now you're asking me what the original monograph
12 was?

13 MR. LASKER: I believe it's Plaintiffs'
14 Exhibit 4.

15 MR. MILLER: Four? Okay. Very well. On
16 we go.

17 BY MR. LASKER:

18 Q I'm just going to hand you a copy of the
19 monograph again. It's the same document. Mr. Miller
20 can confirm.

21 But with respect to the meta-analysis
22 that IARC conducted, that is mentioned on page 30
23 of the monograph. So if I could just turn you to
24 page 30 of the monograph.

25 And do you see there is the discussion of

1 a meta-analysis?

2 A Yes.

3 Q And the meta-analysis is identified as
4 Schinasi and Leon. That is the publication, the
5 paper I just handed to you, which we marked as
6 exhibit -- Defense Exhibit 20, correct?

7 A Correct.

8 Q And it discusses the meta-analysis that
9 was done by Schinasi and Leon, and then an adjustment
10 that the working group made to that monograph -- I'm
11 sorry, to that meta-analysis so as to use fully
12 adjusted estimates of the risks with non-Hodgkin's
13 lymphoma and glyphosate, correct?

14 A Yes.

15 Q And the IARC working group's conclusion
16 was that the meta risk ratio of all the epidemiology
17 was 1.3, which had a confidence interval of 1.03 to
18 1.65. So it just made barely that level of
19 statistical significance, correct?

20 A Correct.

21 Q Now, the meta-analysis was based in part
22 on the 2005 AHS publication, correct?

23 A Correct.

24 Q It was not based upon the data we've now
25 just looked at of the 2013 AHS data, correct?

1 A Right.

2 Q So if we look at Defense Exhibit 20,
3 which is the Schinasi paper, and if you look at
4 page 4505, this sets forth the various studies that
5 IARC looked at with respect to glyphosate and
6 non-Hodgkin lymphoma and the risk ratios from those
7 studies, correct?

8 A Correct.

9 Q And the meta-analysis is a process of
10 weighing these findings from these studies, correct?

11 A Right.

12 Q And the way that the meta-analysis works
13 is it gives a different weight to different studies
14 based upon the power of the study, which is reflected
15 in the size of those confidence intervals, correct?

16 A Correct.

17 Q So the IARC meta-analysis weighing of the
18 2005 AHS study, which is listed here, is based upon
19 the 71 cases of non-Hodgkin lymphoma that were
20 available as of the time of that 2005 publication,
21 correct?

22 A Correct.

23 Q Now, as we've already discussed, the 2013
24 data finds for a much larger number of NHL cases --
25 provides findings for a much larger number of NHL

1 cases, we had like some four times, like 250 cases --

2 A Right.

3 Q -- in that data, correct?

4 A Right.

5 Q And the confidence intervals, because
6 it's a much larger study, were much tighter in that
7 2013 data than the -- than the data we have here,
8 correct?

9 A Correct.

10 Q And we already talked about the fact that
11 the relative risk from the 2013 data of ever/never
12 use was below 1.0, something like 0.9, so it was
13 slightly below the 1.1 relative risk for the De Roos
14 2005 paper, correct?

15 A Correct.

16 Q So if the 2013 data, which you were aware
17 of, had been available for IARC in its meta-analysis,
18 the AHS data would have had significantly more weight
19 in the meta-analysis than is reflected here --

20 A Yes.

21 Q -- and the relative risk data would have
22 been lower than the 2005 study that's incorporated
23 here, correct?

24 A The relative risk for the AHS study would
25 have been lower.

1 Q Right.

2 A Was lower. Yeah.

3 Q Yes, it would have been.

4 A Yeah.

5 Q So it's fair to say, given that IARC --
6 your meta-analysis was just barely statistically
7 significant at 1.03 in the lower bound, if IARC had
8 had the data from the 2013 study, much more -- a much
9 larger study, much greater weight, lower relative
10 risk -- that would have driven the meta-relative risk
11 downward, correct?

12 A Correct.

13 Q And the meta-relative risk with that 2013
14 data from the AHS study that you were aware of would
15 have not have been statistically significant, would
16 it?

17 A I don't know, but probably not.

18 Q Probably not.

19 Now, during the Monograph 112 working
20 group meeting, IARC provided the working group with
21 this meta-analysis data, correct?

22 A Yes.

23 Q Did you mention to anyone at the meeting
24 the likely impact that the more recent data from AHS
25 would have in decreasing the meta -- meta-relative

1 risk for glyphosate and non-Hodgkin lymphoma?

2 A No.

3 Q Now, the Schinasi meta-analysis also
4 includes data from a case-control study, a pooled
5 analysis in the U.S., the De Roos 2003 paper, and it
6 includes relative risk from the McDuffie paper from
7 Canada, correct? Those are also on this chart?

8 A Yes.

9 Q And Schinasi, IARC used an odds ratio of
10 2.1 for the Canadian -- I'm sorry, for the U.S.
11 case-control data, correct? It's on the charts here,
12 the De Roos 2003 with an odds ratio --

13 A You are --

14 Q We're still -- we're still on the
15 Schinasi paper. Same --

16 A Oh, okay. Oh, okay.

17 Q So the De Roos 2003 is listed here.
18 That's the U.S. case-control data, and that's an odds
19 ratio of 2.1, correct?

20 A Yes.

21 MR. MILLER: What page are we on?

22 MR. LASKER: We're on page 4505.

23 MR. MILLER: 4505.

24 BY MR. LASKER:

25 Q And McDuffie, that's the Canadian

1 case-control study, and that's 1.2, correct?

2 A Correct.

3 Q And now if -- there's a little bit
4 different weighting of those two studies because
5 McDuffie is a little bit larger, but if you were to
6 sort of take those two studies in aggregate as
7 considered by the meta-analysis, that works out to --
8 for those two studies an odds ratio of about 1.6 for
9 purposes of meta-analysis if you combine those two
10 studies, correct? 2.1, 1.2, it's going to be around
11 that -- that area, right?

12 A Probably. I don't know. Sometimes you
13 can't just put them together.

14 Q Roughly -- but roughly, roughly 1.6 or
15 so, correct?

16 A Probably.

17 Q Okay. Now, the NAP data -- NAPP data
18 that we were discussing earlier, that's actually a
19 pooled analysis of the data from McDuffie 2001 and
20 De Roos 2003, correct?

21 A Yes.

22 Q And the way that this meta-analysis works
23 is IARC takes the most recent and most comprehensive
24 pooled analysis and doesn't consider the earlier
25 studies, correct?

1 So, for example, Kantor 1992 is not in
2 here because it was pooled into De Roos 2003,
3 correct?

4 A They do -- unless the individual papers
5 have information that isn't in the pooled analyses,
6 which is often the case.

7 Q But with respect to this analysis, for
8 example, De Roos 2003, they don't include Cantor --
9 the Cantor study. They include the most recent
10 pooled data, correct?

11 A In this table.

12 Q Yes.

13 A Yes.

14 Q And in this meta-analysis.

15 A And in this meta-analysis.

16 Q So if we were then to use -- if the NAPP
17 data had been available to IARC, the data we were
18 looking at previously, you recall that the NAPP odds
19 ratio, even including proxy respondents for
20 ever/never use, for glyphosate and non-Hodgkin's
21 lymphoma was 1.22, correct? We looked at that
22 previously.

23 A Sounds right.

24 Q Okay. So if the NAPP data, again that
25 you were aware of at the time, had been available to

1 IARC and had been put into this analysis and replaced
2 McDuffie 2001 and De Roos 2003, the odds ratio number
3 for the U.S. and Canadian case-control studies would
4 drop from probably somewhere around 1.6 to 1.2 or so,
5 correct?

6 A I -- you know, I'm not comfortable making
7 pronouncements about your combining of data from
8 different studies without me seeing the data.

9 Q Okay. Well, just so we're clear, the
10 NAPP data is your data. We looked at it earlier.

11 A It's not in front of me. I'm not
12 comfortable --

13 Q Okay. Well, then --

14 A -- with combining --

15 Q -- let's go -- that's a good point.

16 A -- different things without seeing that.

17 Q Let's go back to that. That's a very
18 good point.

19 So if we could refer -- okay. Look back
20 to Defense Exhibit --

21 MS. SHIMADA: 16.

22 BY MR. LASKER:

23 Q -- 16. So it should be on that -- on the
24 pile, probably in reverse order.

25 MR. MILLER: Well, while we look at that,

1 we're calling a break. It's 1 o'clock. We've been
2 going --

3 MR. LASKER: We're in the middle -- when
4 we finish this line of questioning, we will take a
5 break.

6 MR. MILLER: We said that a half an hour
7 ago.

8 MR. LASKER: When I finish this line of
9 questioning. I'm almost done. We'll be fine. I've
10 got maybe five or ten more questions at most.

11 THE WITNESS: Is this the one you're --

12 BY MR. LASKER:

13 Q That's the one.

14 A Okay.

15 Q So this is the one that we looked at
16 previously, and the first data table we looked at was
17 the -- this table right here, right? This is the
18 ever/never use. That's it.

19 So the ever/never use of this pooled
20 analysis that's pooling the data from McDuffie and
21 from De Roos 2003, the data that you had was 1.22 as
22 the odds ratio, correct?

23 A Correct.

24 Q So that is a lower odds ratio than was
25 used for purposes of the IARC meta-analysis because

1 that meta-analysis was combining a 2.1 and a 1.2,
2 correct?

3 A Yes.

4 Q So if that NAPP data had been available
5 to IARC for its meta-analysis, that also would have
6 lowered the meta-relative risk for glyphosate and
7 non-Hodgkin lymphoma even further, correct?

8 A Probably.

9 MR. LASKER: We can take a break now.

10 THE VIDEOGRAPHER: The time is 12:56 p.m.
11 We're off the record.

12 (Lunch Recess.)

13 THE VIDEOGRAPHER: The time is 1:47 p.m.,
14 on March 20th, 2017. And we are on the record with
15 video 3.

16 MR. MILLER: I just wanted to make a
17 short statement regards time management. Plaintiffs
18 went about an hour and 30 something. I think the --

19 THE VIDEOGRAPHER: 1:34.

20 MR. MILLER: 1:34. So far defendants
21 have gone --

22 THE VIDEOGRAPHER: Two hours.

23 MR. MILLER: -- two hours.

24 Counsel for Dr. Blair has been kind
25 enough to say a total of eight hours, and that's time

1 on record I wanted to clear up and we want our equal
2 time on the record. So we think you would have two
3 hours left then.

4 MR. LASKER: I don't have any problem
5 with that.

6 MR. MILLER: Okay, great. Hopefully you
7 will be done before then, and certainly I'm not going
8 to go on just to hear myself talk either, believe me.
9 Just -- all right, let's go.

10 BY MR. LASKER:

11 Q Okay, back on the record.

12 Dr. Blair, I would like to continue our
13 discussion of the 2013 AHS data on glyphosate and --
14 or actually on pesticides and lymphoma risk or
15 non-Hodgkin lymphoma risks, and particularly the
16 glyphosate data.

17 If I could ask you to turn to page 84 of
18 that document, Supplemental Table 7. And you had
19 testified earlier this morning about the fact that
20 the definition of non-Hodgkin lymphoma has changed
21 over time. Do you recall that?

22 A Yes.

23 Q And in this 2013 study, the AHS data is
24 actually presented with two different definitions of
25 non-Hodgkin lymphoma, and Supplemental Table 7 is

1 data that uses what is referred to as the old NHL
2 definition.

3 Do you see that?

4 A Yes.

5 Q Okay. And do you recall how the
6 definition changed from the old definition to the
7 definition that's being used today?

8 MR. MILLER: Excuse me, Counsel. Page
9 number?

10 MR. LASKER: 84.

11 THE WITNESS: Lymphoma -- non-Hodgkin
12 lymphoma now includes multiple myeloma and chronic
13 lymphocytic leukemia.

14 BY MR. LASKER:

15 Q Okay. So this data table, Supplemental
16 Table 7 is defining non-Hodgkin lymphoma as not
17 including multiple myeloma or CLL; is that correct?

18 A Correct.

19 Q Okay. So let's look at the data for
20 glyphosate under the old definition, and that's on
21 page 91.

22 And on the middle of the page, again we
23 have glyphosate data, both the duration and intensity
24 of use, correct?

25 A Yes.

1 Q And again, we have data on no exposure
2 and then low, medium and high exposure groups,
3 correct?

4 A Correct.

5 Q Now, the total number of -- of farmers
6 with non-Hodgkin lymphoma in this analysis is 72 plus
7 51 plus 60, that's about 183 farmers, correct?

8 A Correct.

9 Q So with using this data from the 2013
10 study, the study is about three times larger than the
11 published data from the 2005 study, correct?

12 A Okay.

13 Q And the findings as far as the relative
14 risks are concerned are pretty close to what the
15 findings were with the new definition, correct?

16 A Correct.

17 Q As far as non-Hodgkin lymphoma risks?

18 A Yes.

19 Q So as we look at no exposures versus
20 different levels of exposure, the ever/never risk
21 ratio is again something like 0.9 or so, correct?

22 A Probably.

23 Q Okay. And the same discussion we had
24 previously about how use of this updated data in the
25 IARC meta-analysis would lower the meta-relative

1 risk, that same answer would apply for this data as
2 well, correct?

3 A Yes.

4 Q Now, I would like to take you to another
5 part of the analysis in the 2013 -- in the 2013 AHS
6 study with respect to different NHL subtypes.

7 Now, let me -- let's turn first to page 7
8 of the -- of the paper because they discuss the
9 different subtypes there. And there are five
10 different groups of subtypes discussed under tumor
11 characteristics.

12 Do you see that?

13 A Yes.

14 Q So the -- this is looking at different
15 types of non-Hodgkin lymphoma putting them into
16 categories, correct?

17 A Correct.

18 Q And then there is a separate analysis
19 conducted in this 2013 paper looking at the relative
20 risks for the studied herbicides for each of the
21 different NHL subtype categories, correct?

22 A Correct.

23 Q And that data -- that analysis starts on
24 page 69. And specifically on page 69, we have data
25 on glyphosate. Let's look first so we can get the

1 categories correct -- on page 66 at the beginning of
2 the table, so we can understand what is what.

3 So page 66 has the different categories
4 of non-Hodgkin lymphoma on those columns on the top,
5 right?

6 A Correct.

7 Q Okay. And then if you just keep your
8 finger on that page just so you can remind yourself
9 which categories are which, page 69 is where they
10 have the findings for glyphosate, and I would like to
11 ask you about the glyphosate finding with respect
12 to -- on these different types of non-Hodgkin
13 lymphoma.

14 So if you look at page 69, the AHS
15 analysis in the first subtype grouping, which is
16 chronic B-cell lymph -- lymphocytic lymphoma, small
17 B-cell lymphocytic lymphomas, and mantle cell
18 lymphomas, the 2013 AHS data analysis does not find
19 any association between glyphosate and that NHL
20 subtype, correct?

21 A Correct.

22 Q And if we look at -- in fact, for that
23 subgroup -- oh, strike that.

24 If you look at the large B-cell
25 lymphoma --

1 MR. MILLER: I'm sorry. What page are we
2 on?

3 MR. LASKER: We're on page 69.

4 MR. MILLER: Thank you.

5 BY MR. LASKER:

6 Q -- the second column is large B-cell
7 lymphoma, correct?

8 A Diffuse large B-cell, yeah.

9 Q And the 2013 AHS data actually finds a
10 statistically significant negative association
11 between increased glyphosate exposure and -- and
12 diffuse large B-cell lymphoma, correct?

13 A For days per year, yes.

14 Q Yeah. So, in other words, as a farmer
15 has more days of exposure of glyphosate in this study
16 population, the instance of large B-cell lymphoma
17 actually decreases, correct?

18 A Correct.

19 Q And that's a statistically significant
20 finding, correct?

21 A Yes. Trend test.

22 Q The 2013 AHS data also looks at
23 follicular B-cell lymphomas, correct?

24 A Yes.

25 Q And the 2013 AHS analysis does not find

1 any association between glyphosate exposure and
2 follicular B-cell lymphomas, correct?

3 A Deficits that aren't statistically
4 significant.

5 Q And when you say "deficits," what
6 actually they found in this study, again, is as the
7 level of -- as a farmer had more days of exposure to
8 glyphosate, the incidence of follicular B-cell
9 lymphomas went down, correct?

10 A No. It means that at any level of
11 exposure, the level, the relative risk was less than
12 1.0.

13 Q Correct. Correct. Correct.

14 A It was 0.7 or 0.6. It does not go down.

15 Q So what with the 2013 AHS data reveals is
16 that any level of exposure to glyphosate resulted in
17 a lower incidence of follicular B-cell lymphomas,
18 correct?

19 A Lower -- lower incidence or lower
20 relative risk that isn't statistically significant.

21 Q And with respect to the category for --

22 A Other B-cell.

23 Q -- other B-cell type lymphomas, again we
24 see that with any level of exposure to glyphosate,
25 the incidence of B-cell type lymphomas, the relative

1 risk goes down, correct?

2 A It's lower.

3 Q And if you look at the point estimate for
4 relative risk, both for the other B-cell type
5 lymphomas and the follicular B-cell lymphomas at the
6 highest level of exposure, the relative risk is 30 to
7 40 percent lower for farmers with the highest level
8 of glyphosate exposure compared to farmers with no
9 exposure, correct?

10 A Correct.

11 Q Did you inform anyone at the IARC working
12 group that the AHS -- that the Agricultural Health
13 Study had conducted additional analyses of glyphosate
14 for various NHL subtypes?

15 A No, because it wasn't published.

16 Q Now, let me ask you to turn to page 78 of
17 this paper. And here we have a table that's looking
18 at potential individual and joint effects of
19 pesticide combinations and NHL risk, correct?

20 A Yes.

21 Q So now we're looking to see, well, what
22 if you put two different types of pesticides
23 together, what is that -- what is reflected in the
24 data for that, correct?

25 A Correct.

1 Q So let's turn to page 80 and 81. And
2 here we have the data for glyphosate with -- in
3 combination with other types of -- with other --
4 three other pesticides.

5 Do you see that?

6 A Yes.

7 Q So glyphosate and atrazine, glyphosate
8 and 2,4-D, and glyphosate and chlordane, correct?

9 A Yes.

10 Q And the analysis, when you look at it
11 this way for glyphosate only, and the atrazine --
12 glyphosate and atrazine analysis, glyphosate only is
13 0.96; for glyphosate only with the glyphosate and
14 2,4-D, it's 1.1; for glyphosate only and glyphosate
15 and chlordane is 0.9.

16 So in the glyphosate-only portions of
17 this, again we're not showing any increased risk of
18 non-Hodgkin lymphoma, correct?

19 A Correct.

20 MR. MILLER: Object to the form of the
21 question.

22 BY MR. LASKER:

23 Q And with respect to combinations, if you
24 look at farmers exposed to glyphosate and atrazine
25 together, there is no increased risk -- statistically

1 significant increased risk of non-Hodgkin lymphoma,
2 correct?

3 A Say again.

4 Q For farmers who are exposed to both
5 glyphosate and atrazine, there is no statistically
6 significant increased risk of non-Hodgkin lymphoma,
7 correct?

8 A Correct.

9 Q For farmers exposed to both glyphosate
10 and 2,4-D, there is no statistically significant
11 increased risk of non-Hodgkin lymphoma, correct?

12 A Correct.

13 Q For farmers exposed to glyphosate and
14 chlordane, there is no statistically significant
15 increased risk of non-Hodgkin lymphoma, correct?

16 A Yes.

17 Q And this is also information that the
18 IARC working group did not have at the time it made
19 its analysis of glyphosate, correct?

20 A Correct.

21 Q Now, I want to show you another document
22 that was from your production to us, and this is an
23 e-mail between you and some of the other Agricultural
24 Health Study investigators in February 2014.

25 First of all, who is Dr. Alavanha

1 (phonetic)?

2 A Alavanja.

3 Q Alavanja.

4 A He was an investigator at the National
5 Cancer Institute and was involved in the Agricultural
6 Health Study.

7 Q Is he an epidemiologist as well --

8 A Yes.

9 Q -- as yourself?

10 Okay. Let's mark this as Defense Exhibit
11 21.

12 (Blair Exhibit No. 21 was marked for
13 identification.)

14 BY MR. LASKER:

15 Q Well, first of all, do you recall when it
16 was that the glyphosate data was removed from this
17 AHS study that we've been talking about?

18 A Not exactly, but it went through many
19 iterations after we decided to remove it because
20 there really wasn't -- you couldn't put it all into
21 one paper.

22 Q Let's look at an e-mail dated February
23 28, 2014, and this is an e-mail from Dr. Alavanja to
24 other members of the AHS, including yourself,
25 correct?

1 A This is the one you just handed me?

2 Q Yes.

3 A Yes.

4 Q Dr. Alavanja, he was the lead author,
5 wasn't he -- was he not, on the 2013 paper that we
6 were just looking at?

7 A The document, yes. Right.

8 Q In his February 14, 2014 e-mail,
9 Dr. Alavanja is discussing the AHS team's efforts to
10 get its updated NHL analysis published, correct?

11 A Yes, I guess so.

12 Q And I take it from your former answer,
13 you're not -- you don't recall now whether or not the
14 glyphosate data was still in the paper at this point
15 in time or not, correct?

16 A No, it was not because it had been
17 submitted to a journal, and we never submitted to a
18 journal with that data in it.

19 Q Okay. So in this e-mail Dr. Alavanja is
20 discussing the fact that the International Journal of
21 Cancer had decided not to publish what was at that
22 point the updated manuscript for non-Hodgkin lymphoma
23 and other pesticides, correct?

24 A Yes. Insecticides.

25 Q Insecticides. And Dr. Alavanja

1 attributes the journal's decision not to publish the
2 AHS paper on NHL and insecticides on the fact that
3 the paper did not present conclusive evidence
4 associating NHL with any of the pesticides examined,
5 correct?

6 A That's what it says.

7 Q So Dr. Alavanja is referring to the fact
8 that journals are sometimes less willing to publish
9 epidemiologic studies if they don't find positive
10 associations, correct?

11 A Yes.

12 Q This problem is sometimes referred to as
13 publication bias, correct?

14 A Yes.

15 Q It's more difficult to get negative
16 findings published, correct?

17 A Correct.

18 Q And as a result, sometimes negative
19 findings and epidemiological studies are not
20 published, correct?

21 A Yes. Right.

22 Q And Dr. Alavanja notes in the second
23 paragraph of his e-mail -- and let's see, if it's
24 working its way -- I was going to read it: "At the
25 current time" -- and this is the second paragraph

1 starting at the very beginning: "At the current time
2 IARC is making plans for a new monograph on
3 pesticides."

4 And so, again, we're talking about the
5 monograph that ultimately became Monograph 112 where
6 you were the chair prior, correct?

7 A Well, it preceded that monograph
8 certainly.

9 Q Right. So when he is talking about IARC
10 is making plans for a new monograph on pesticides, he
11 is referring to the monograph that was the one that
12 you ultimately worked on, correct?

13 A Yes. Right.

14 Q And Dr. Alavanja states: "Concerning
15 IARC's timetable for selecting candidates for the
16 monograph, it would be irresponsible if we didn't
17 seek publication of our NHL manuscript in time to
18 influence IARC's decision."

19 Do you see that?

20 A Yeah.

21 Q And you would agree that the AHS provides
22 important data regarding potential associations
23 between pesticides and cancer, correct?

24 A Yes.

25 Q You would agree that the AHS data and the

1 most updated AHS data should be considered by IARC,
2 correct?

3 A Yes.

4 Q You would agree that it would be --

5 A Well, wait, wait. If it's been
6 published.

7 Q And you would agree with Dr. Alavanja
8 that it would be irresponsible for the AHS --
9 Agricultural Health Study investigators not to
10 publish the updated findings on pesticides and NHL in
11 time to influence IARC's decision, correct?

12 A No. I don't agree with that. And the
13 reason is because the timetable about when you have
14 to have it published is arbitrary. And doing
15 analyses and writing papers is not wedded to a
16 timetable. And what is irresponsible is to rush
17 something out that's not fully analyzed or thought
18 out.

19 Q Let me ask you --

20 A That's irresponsible.

21 Q I'm sorry. Let me ask you then about the
22 e-mails you were talking about previously with
23 respect to the North American Pooled Project, and we
24 can go back to those if you want. But as I remember,
25 Dr. Pahwa was discussing the possibility of doing

1 some analyses of NHL and multiple myeloma and
2 glyphosate in time to get those published for the
3 IARC analysis, right?

4 A Yeah.

5 Q And at that time you offered Dr. Pahwa
6 whatever help she needed to see if you could get that
7 data published, and this is before you saw what the
8 data was, correct?

9 A I don't remember about that. Maybe.
10 I -- I just don't remember about that.

11 Q So --

12 A I mean about whether I had seen the --
13 any data or not. I mean tables come out. There's --
14 none of this is listed in -- glistened down in your
15 mind about where things are.

16 Q Well, if we can go back to Exhibit 14,
17 and that should be in your pile there, but I can give
18 you another copy if you want if that would be easier.
19 Dr. Blair.

20 A Yeah.

21 Q So -- so this, just to refresh our jury's
22 recollection, was prior to Dr. Pahwa going back and
23 finding out what the data showed from NAPP for
24 glyphosate and NHL or MM and -- or HL, Hodgkin
25 lymphoma. You were offering Dr. Pahwa whatever help

1 you could to try to get the data published in time
2 for the IARC monograph meeting, correct?

3 A Yeah.

4 Q But then after we -- after you determined
5 and found out what the data showed with respect to
6 glyphosate and these cancers, the data wasn't
7 published, correct?

8 A The paper wasn't finished, and you have
9 to finish things in the analysis and the writing
10 before you can publish it.

11 Q Okay. So let's go back then to what the
12 IARC analysis was and what the working group did.

13 So the IARC working group then in its
14 analysis of the epidemiology was relying upon -- was
15 not relying upon the most up-to-date AHS data,
16 correct?

17 A It was relying upon the most up-to-date
18 published data, and that's always the standard at
19 IARC.

20 Q I understand. But just so the record is
21 clear, IARC was not relying upon the most updated
22 analysis that you were aware of from the AHS data
23 with respect to glyphosate and non-Hodgkin lymphoma,
24 correct?

25 A Now you present it as if the analyses

1 were completed. Analyses were done, manuscripts were
2 in description, but the work wasn't finished, which
3 means it's incomplete, and that you don't want to be
4 reporting on. And we didn't.

5 Q So -- understood.

6 And because of the fact that you had not
7 completed the manuscript that was in at least
8 manuscript form in March of 2013 in time for it to be
9 a publication by March 2015, IARC didn't have that
10 information?

11 A That's correct.

12 Q Now, going back to this issue of
13 publication bias, did the Agricultural Health Study
14 decide not to include data regarding glyphosate and
15 non-Hodgkin lymphoma in its updated publication
16 because the data did not show a positive association?

17 A No. It decided to do pesticides first
18 because we proceeded -- insecticides first, we sort
19 of proceeded down that line early on and didn't think
20 we had time to switch and do the other when IARC
21 became clear that that's what they were going to look
22 at.

23 Q Now, you and other AHS investigators are
24 certainly aware, and we looked at some of this
25 discussion previously, that questions have arisen

1 about IARC's -- I won't say questions -- have arisen
2 about IARC's classification of glyphosate, correct?

3 MR. MILLER: Objection to form.

4 Questions by whom, Monsanto?

5 BY MR. LASKER:

6 Q Well, let me put it this way: You're
7 aware that Christopher Portier, we looked at one of
8 his publications, has been defending the IARC
9 classification of glyphosate by relying on the old
10 data from the Agricultural Health Study to try and
11 minimize the importance of that study, correct?

12 A Well, I guess as he reported about what
13 IARC did, it was the -- there's no new published data
14 from AHS to look at.

15 Q And --

16 A Is that what you're saying?

17 Q Well, Dr. Portier, though, as we looked
18 at previously, in defending the IARC classification,
19 has included arguments that the AHS data -- the AHS
20 study in 2005 was of smaller numbers and limited
21 follow-up. Remember we looked at that?

22 A Yes.

23 Q Okay. Nearly four years have passed now
24 since you and the other AHS investigators looked at
25 the updated and more robust AHS data and found no

1 association between glyphosate and non-Hodgkin
2 lymphoma, correct?

3 MR. MILLER: Object to the form of the
4 question.

5 BY MR. LASKER:

6 Q You can answer.

7 MR. MILLER: You can answer.

8 BY MR. LASKER:

9 Q I will repeat the question.

10 A Yes.

11 Q Nearly four years have passed now since
12 you and other AHS investigators looked at the updated
13 data and saw that it did not show any association
14 between glyphosate and non-Hodgkin lymphoma, correct?

15 MR. MILLER: And I object to the form of
16 the question because you intentionally leave out that
17 it's not statistical.

18 THE WITNESS: Yes, we -- we've looked at
19 some data like that, but we haven't looked at a
20 finished product.

21 BY MR. LASKER:

22 Q Now, the updated AHS data would directly
23 answer the questions Dr. Portier raised about the
24 size of the study and about the length of follow-up
25 time, correct?

1 A Yes.

2 Q But you and the other AHS investigators
3 have, as of today's date in March 2017, not yet
4 published this updated AHS data on glyphosate,
5 correct?

6 A Correct.

7 Q In fact, the AHS has actively sought to
8 prevent Monsanto from learning about this updated AHS
9 data, hasn't it?

10 A I -- I -- I don't know about that.

11 Q Well, let me ask you -- let me show you
12 another e-mail from your document production to us.
13 (Blair Exhibit No. 22 was marked for
14 identification.)

15 BY MR. LASKER:

16 Q This is Defense Exhibit 22.

17 And this is an e-mail in which
18 Mr. Sandler is responding to your e-mail to him
19 attaching a copy of a subpoena we sent to you in this
20 litigation, correct?

21 A Yes.

22 Q Mr. Sandler notes --

23 A It's a woman.

24 Q I'm sorry?

25 A It's a woman.

1 Q Oh, Ms. Sandler. Dr. Sandler?

2 A Dr. Sandler.

3 Q Dr. Sandler. Thank you.

4 Dr. Sandler notes that our subpoena to

5 you, and Dr. Sandler -- just so I understand,

6 Dr. Sandler is with NIEHS?

7 A Correct.

8 Q The National Institute of Health?

9 A Environmental Health Sciences.

10 Q And Dr. Sandler notes in her e-mail back

11 that our subpoena to you was seeking the same AHS

12 papers and requests for data that Monsanto had

13 separately sought from the AHS investigators

14 affiliated with the National Institutes of Health

15 through a FOIA request, correct?

16 MR. MILLER: Object to the form of the

17 question. Intentionally misrepresenting the

18 document. Read the document, Counsel.

19 BY MR. LASKER:

20 Q Dr. Blair?

21 A Apparently that's it.

22 Q And Dr. Sandler states, quote: We were

23 hoping to make the Freedom of Information Act go away

24 by offering data through a data sharing agreement.

25 Do you see that?

1 A I do.

2 Q But -- and then Dr. Sandler says: "It's
3 probably time to seek protection from NA -- NIH
4 lawyers." Correct?

5 A Yes.

6 Q So the AHS investigators at the National
7 Institutes of Health were seeking protection from
8 National Institutes of Health lawyers to prevent
9 Monsanto from getting access to the updated AHS data
10 showing no association between glyphosate and
11 non-Hodgkin lymphoma.

12 MR. MILLER: Object to the form of the
13 question.

14 THE WITNESS: Maybe they did. I'm
15 just -- I see the e-mail. It's the only thing I know
16 about it.

17 BY MR. LASKER:

18 Q Okay. But you received this e-mail,
19 correct? It's from your document production.

20 A Yes. But I'm saying I see this e-mail
21 and that's the only thing I know about this.

22 Q You would agree that it's not appropriate
23 for the National Institutes of Health to be seeking
24 protection from its lawyers to prevent Monsanto from
25 learning that the updated AHS data showed no

1 association between glyphosate and non-Hodgkin
2 lymphoma, don't you?

3 MR. MILLER: Objection. Calls for a
4 legal conclusion. We already had one subpoena
5 quashed.

6 THE WITNESS: I guess I don't see -- give
7 me your question again, because I don't see it here.
8 They're asking for data. That's the raw data.

9 BY MR. LASKER:

10 Q So do you believe -- well, strike that.

11 You would agree that it's not appropriate
12 for the National Institutes of Health to turn to its
13 lawyers to protect it from Monsanto's efforts to
14 obtain updated Agricultural Health Study data with
15 respect to glyphosate and non-Hodgkin lymphoma, don't
16 you?

17 MR. MILLER: Objection to the question.
18 It calls for a legal conclusion, when you've already
19 lost before the court.

20 THE WITNESS: I don't think I can
21 provide -- I mean there is a Freedom of Information
22 Act that government employees follow, so I --

23 BY MR. LASKER:

24 Q Let me --

25 A -- I don't think I have any expertise in

1 this.

2 Q Do you think it's appropriate for the
3 National Institutes of Health to try and use legal
4 means to avoid providing Monsanto with updated
5 Agricultural Health Study data?

6 MR. MILLER: Object to the question.
7 Requires a legal conclusion and on a motion to quash
8 you've already lost, Counselor. And that's the third
9 time you've asked the witness the same question.
10 You're clearly harassing the witness.

11 BY MR. LASKER:

12 Q Do you think it's appropriate for the
13 National Institutes of Health to use its lawyers to
14 prevent Monsanto from getting updated AHS data that
15 shows no association between glyphosate and
16 non-Hodgkin lymphoma?

17 MR. MILLER: Objection to the question.
18 Calls for a legal conclusion on a motion to quash you
19 have already lost and will lose when you try again.
20 You are harassing the witness. That is the fourth
21 time you have asked the same question. You have only
22 a certain amount of time left.

23 Ask it again and there will be a fifth
24 objection.

25 MR. LASKER: Okay. So you are objecting

1 to us finding out why the NIH has not given us the
2 update from the Agricultural Health Study showing no
3 association between glyphosate and cancer --

4 MR. MILLER: I'm referring to the
5 National Institute of Health and their attorneys to
6 find out what their legal rights might be, Counselor.
7 BY MR. LASKER:

8 Q And, Dr. Blair, perhaps counsel may try
9 to prevent you from answering this question one more
10 time, but I will ask you one more time.

11 MR. GREENE: Objection. I don't know if
12 Dr. Blair --

13 MR. LASKER: He can answer that -- if
14 that's his answer, that's fine. I just want an
15 answer from him.

16 MR. GREENE: It's his position --

17 MR. LASKER: That's his -- if he has that
18 answer, that's fine. I need to hear an answer from
19 him, though. He's the witness.

20 MR. MILLER: What's the question,
21 Counselor?

22 BY MR. LASKER:

23 Q Dr. Blair, do you think it's appropriate
24 for the National Institutes of Health to use their
25 lawyers to prevent Monsanto from getting updated

1 Agricultural Health Study data showing no association
2 between glyphosate and non-Hodgkin lymphoma?

3 MR. MILLER: And I object to the
4 question. This calls for a legal conclusion on the
5 harassing subpoenas that have been sent out by
6 Monsanto and have been quashed by this court as
7 recently as two weeks ago. You have now asked the
8 witness the same question six times. Ask it of the
9 National Institutes of Health attorneys. Ask it of
10 Judge Chhabria, see if Judge Chhabria will give it to
11 you.

12 BY MR. LASKER:

13 Q Dr. Blair, do you have an answer to my
14 question?

15 MR. MILLER: You don't have to answer
16 that.

17 MR. LASKER: He's not your witness.

18 MR. MILLER: He's not my witness, but --

19 BY MR. LASKER:

20 Q Dr. Blair, do you have an answer to my
21 question?

22 A No.

23 Q All right. Dr. Blair, you have had the
24 opportunity to discuss the IARC classification with
25 various interested parties over the past three years,

1 correct?

2 A In general, yes. Right.

3 Q I would like to ask you about some of
4 those communications.

5 (Blair Exhibit No. 23 was marked for
6 identification.)

7 BY MR. LASKER:

8 Q Marked as Exhibit 23. And this is an
9 e-mail string from March 23rd to March 25th of 2015
10 between you and a number of members of the IARC
11 staff, including Kurt Straif, Dana Loomis and Kate
12 Guyton, correct?

13 A Yeah.

14 Q And in the beginning of this e-mail
15 chain, which again is at the end of the physical
16 documents, or actually it's the third page in, you
17 are advising IARC about a number of press interviews
18 that you had conducted in the wake of the IARC
19 classification of glyphosate, correct?

20 A Yes.

21 Q And you state here that the reporters
22 questioned you about why the IARC evaluation of
23 glyphosate was different than those done earlier
24 elsewhere, correct?

25 A Yes.

1 Q You stated -- I'm sorry, you state that
2 your answer to the question was that, quote: New
3 information becomes available over time. Right?

4 A Yes.

5 Q In discussing this new information, did
6 you inform any of these reporters about the updated
7 Agricultural Health Study data finding no association
8 between glyphosate and non-Hodgkin lymphoma based
9 upon a study that was three to four times larger than
10 the 2005 AHS paper?

11 MR. MILLER: Objection to the form of the
12 question.

13 THE WITNESS: No, because we're talking
14 about papers that are published.

15 BY MR. LASKER:

16 Q Is there any rule that reporters impose
17 like IARC imposes that prevents you from informing
18 them about scientific data if it's not published?

19 A There is when talking about the IARC
20 data, which is based on published studies.

21 Q Well, did the reporters -- here you're
22 saying new information becomes available over time.
23 Did you tell those reporters, Listen, I'm only going
24 to talk to you about the published data and not the
25 unpublished data that I'm aware of?

1 A No, I certainly didn't do that.

2 Q You've also had a --

3 A Let me add to that, though. Yes, I
4 didn't do that, but it's only prudent and appropriate
5 to talk about studies that are finished before you
6 start talking to the press about them.

7 Q And --

8 A Because things change.

9 Q And it's your decision with the AHS, as
10 an AHS investigator, to determine and decide when
11 you're going to try and submit things for them to be
12 published, correct?

13 A Absolutely.

14 Q You've also had a number of discussions
15 with a reporter named Carey Gillam, correct?

16 A Yes, I think so.

17 Q Did you ever tell Carey Gillam about the
18 updated AHS data showing no association between
19 glyphosate and non-Hodgkin lymphoma?

20 A No.

21 Q Now, Ms. Gillam reached out to you in
22 September of 2016, and let me show you the document
23 because I don't know if you will remember this.

24 And let's this -- we will mark this as
25 Exhibit 24.

1 (Blair Exhibit No. 24 was marked for
2 identification.)

3 BY MR. LASKER:

4 Q And this is an e-mail exchange between
5 you and Carey Gillam, correct?

6 A Yes.

7 Q And in this e-mail she is reaching out to
8 you in September 2016 after a phone call she had with
9 Chris Portier, correct?

10 A Yes.

11 Q And again, we've discussed the fact that
12 Chris Portier has been critical of the published 2005
13 AHS study because of what he viewed as limited
14 numbers and limited use of follow-up, correct?

15 A Yes.

16 Q Did the issue of the AHS study come up
17 during this conversation with Ms. Gillam?

18 A The issue of the AHS study?

19 Q Yes. And Dr. Portier's criticisms of
20 that study.

21 A I -- I don't recall.

22 Q Do you recall if Ms. Gillam was following
23 up on Chris Portier's observations about the 2005 AHS
24 study?

25 A Well, she had talked to him, but I --

1 nothing do I remember specific what was in the
2 conversation she had with him.

3 Q But you do know that you did not tell her
4 about the updated AHS data we've been discussing,
5 correct?

6 A Correct.

7 Q You also contacted -- you were also
8 contacted by someone named Marie-Monique Robin,
9 correct?

10 Well, let me show you --

11 A Is there a document here somewhere?

12 Q There will be. It's the next one in
13 line. Just wait a second.

14 A Doesn't ring a bell.

15 MR. LASKER: This will be Defense
16 Exhibit 25.

17 (Blair Exhibit No. 25 was marked for
18 identification.)

19 MR. MILLER: Thank you. 25.

20 MR. LASKER: 25.

21 BY MR. LASKER:

22 Q And so this is an e-mail in August of
23 2016 from Marie-Monique Robin to you, correct?

24 A Yes.

25 Q And in her e-mail to you, Ms. Robin

1 explains that she is the author of a number of books
2 that have been sharply critical of Monsanto and
3 glyphosate, including, quote, Our Daily Poison,
4 correct?

5 A I assume that is in there somewhere,
6 but --

7 Q It's right at the beginning of her e-mail
8 to you. "I am the author of documentaries and books,
9 The World According to Monsanto, Our Daily Poison --

10 A Okay. Yes.

11 Q -- Crops of the Future, Good Old Growth.

12 A Yes.

13 Q And she also in that e-mail in the next
14 paragraph accuses Monsanto of crimes against the
15 environment and the ecosystem because of its sales of
16 glyphosate, correct?

17 A Well, I don't see exactly the words you
18 just read, but --

19 Q Well, she talks about submitting --
20 and about halfway through, she talks about making
21 recommendations to the International Criminal Court
22 in The Hague to recognize the crime of ecocide.

23 Do you see that?

24 A Okay.

25 Q So she is suggesting that Monsanto should

1 be tried in the International Court -- Criminal Court
2 in The Hague, correct?

3 A I -- I guess. I mean this is not
4 something I -- I mean this sounds legal that I -- I
5 can guess what the words say, but I have no idea what
6 that means.

7 Q And Ms. Robin was referred to you by
8 Kathryn Guyton of IARC, correct? That's what her
9 subject line says.

10 A Yes.

11 Q Do you know why IARC suggested that
12 Ms. Robin speak with you about glyphosate and her
13 views about the International Criminal Court?

14 A No.

15 Q Do you believe --

16 A Other than I assume it's because I was on
17 the IARC panel.

18 Q Do you believe that the sale of
19 glyphosate amounts to a violation of international
20 criminal law?

21 A I --

22 MR. MILLER: Calls for a legal
23 conclusion.

24 THE WITNESS: Yeah, I --

25 BY MR. LASKER:

1 Q You don't have an opinion one way or the
2 other on that?

3 A No.

4 Q Did you --

5 MR. LASKER: Whoever is on the phone, if
6 they could moot -- mute their line, please.

7 MR. MILLER: Is anyone on the phone?

8 MS. WAGSTAFF: Yeah, Aimee Wagstaff. I
9 will put it back on mute.

10 MR. MILLER: Thank you. Thank you,
11 Ms. Wagstaff.

12 BY MR. LASKER:

13 Q Did you tell Ms. Robin about the updated
14 Agricultural Health Study data that showed no
15 association between glyphosate and non-Hodgkin
16 lymphoma?

17 A No.

18 Q Okay. You were also contacted on
19 March 6th --

20 A I did not tell her about the incompleted
21 AHS study --

22 Q Understood.

23 A -- that purports to show no -- yes.
24 Let's use those words from now on.

25 Q And again, as an investigator for the

1 AHS, it was your determination whether to submit that
2 data for publication or not, correct?

3 A Yes. Not mine; authors.

4 Q You were one of --

5 A I'm just one of the authors.

6 Q -- the authors. Okay.

7 (Blair Exhibit No. 26 was marked for
8 identification.)

9 THE WITNESS: Are we done with the one we
10 just looked at?

11 MR. LASKER: Yes, we are.

12 BY MR. LASKER:

13 Q So Exhibit 26, now you have an inquiry
14 from Mr. A Martin from Bloomberg News, correct?
15 Andrew Martin?

16 A Yes.

17 Q And in his e-mail to you on March 24th,
18 2016, he states, quote: I wonder if you would be
19 willing to talk about the pesticide -- pesticide
20 industry's response to the IARC report on glyphosate,
21 in particular criticism that was specific to you.

22 Do you see that?

23 A Yes.

24 Q And you in response to this reach out to
25 IARC asked them what -- what this might be about,

1 correct? You reach out to Kathryn Guyton and Kurt
2 Straif of IARC.

3 You have to go backwards. It's the first
4 page that has your response.

5 A Well, I certainly referred him to IARC.
6 I --

7 Q Well, you reach out to IARC and say, any
8 idea of what criticisms he is referring to --

9 A Okay, yes. I see it.

10 Q -- or any advice.

11 A Yes. Right.

12 Q So you asked IARC for advice as to how to
13 respond to Andrew Martin from Bloomberg News.

14 A The -- actually, the decision was always
15 who was going to talk to whom. IARC people talk to
16 some, I talk to other people, and it was just a
17 decision of who was going to talk to him.

18 Q So IARC in their response to you state
19 that Mr. Martin might be talking about two potential
20 criticisms, correct? There are two potential issues
21 that come to mind?

22 A This is the top?

23 Q The top e-mail.

24 A Yes.

25 Q And the first potential criticism that

1 IARC identifies is the issue of the negative AHS
2 study outweighing the positive studies on non-Hodgkin
3 lymphoma, correct?

4 A Okay. Yes.

5 Q And the second potential criticism is
6 about experts reviewing their own work --

7 A Yes.

8 Q -- which is the issue that you had raised
9 at the very beginning of this process, correct?

10 A Yes.

11 Q And Mr. Straif of IARC refers you to some
12 IARC Q&A in response to those criticisms regarding
13 IARC's treatment of the Agricultural Health Study,
14 correct?

15 "We have posted additional material on
16 our website responding to some criticisms." Do you
17 see that?

18 A This is still in the top?

19 Q Yeah, the top e-mail, the third
20 paragraph: After the latest invitation to the
21 European Parliament, we have posted additional
22 materials on our website" --

23 A Okay. Okay. Yes. All right.

24 Q -- "responding to some criticisms
25 including the AHS issue." Correct?

1 A Okay. Yes.

2 Q So let's take a look at that IARC Q&A
3 document.

4 (Blair Exhibit No. 27 was marked for
5 identification.)

6 BY MR. LASKER:

7 Q Exhibit 27. And this is from the IARC
8 website dated March 1st, 2016. So this is a few
9 weeks before the e-mail exchange we just looked at,
10 correct?

11 A Yes.

12 Q So this is the Q&A on glyphosate that
13 IARC refers you to with respect to the criticisms of
14 the AHS study, correct?

15 A Yes.

16 Q Now, with respect to the Agricultural
17 Health Study, if you can go to page 2, there is in
18 the middle of the page in bold a discussion of the
19 Agricultural Health Study and the criticisms of
20 IARC's dealing with that study and then IARC's
21 response. Correct?

22 A Yes.

23 Q And IARC in its Q&A states: "The
24 Agricultural Health Study has been described as the
25 most powerful study, but this is not correct. The

1 AHS data on cancer and pesticides use in more than
2 50,000 farmers and pesticide applicators in two
3 states in the U.S., the weakness of the study is that
4 people were followed up for a short period of time,
5 which means fewer cases of cancer would have had time
6 to appear." Correct?

7 A Yes.

8 Q But as of this date, you were aware and
9 had been for three years that there was more AHS data
10 that had a longer follow-up and some four times more
11 cases of NHL than had been discussed in the 2005
12 published paper, correct?

13 A Yes. For analyses that had not been
14 completed.

15 Q Did you write back to Kurt Straif at IARC
16 and point out that there is actually more updated
17 data available from the AHS and that this criticism
18 was no longer valid?

19 A No, because IARC works on papers that
20 have been published.

21 Q And the IARC Q&A also refers in that
22 last -- second paragraph, last paragraph in response
23 to the questions about the Agricultural Health Study
24 that the IARC working group had done an analysis --
25 statistical analysis of the results of all of the

1 available studies on glyphosate and non-Hodgkin
2 lymphoma, which includes the AHS and all the
3 case-control studies, and that's referring to the
4 meta-analysis, correct?

5 A Yes.

6 Q And the Q&A states that the data from all
7 the studies combined showed a statistically
8 significant association between non-Hodgkin lymphoma
9 and exposure to glyphosate, correct?

10 A Correct.

11 Q And did you write back to Kurt Straif and
12 point out that there was updated both from the
13 Agricultural Health Study and through the NAPP that,
14 if included, would result in that meta-analysis not
15 showing a statistically significant increased risk of
16 non-Hodgkin lymphoma?

17 A No, because those studies hadn't been
18 published and weren't finished.

19 Q Now, you have also had conversations
20 since the IARC glyphosate monograph with scientists
21 at EPA, correct?

22 A Yeah, I guess. I --

23 MR. LASKER: Let's mark this as
24 Exhibit 28.

25 (Blair Exhibit No. 28 was marked for

1 identification.)

2 BY MR. LASKER:

3 Q Now, Dr. Blair, does EPA have any rule
4 that states that it will not look at data unless it's
5 been published, to your knowledge?

6 A Not to my knowledge.

7 Q Okay. So this is an e-mail chain from
8 May 2016 between you and a scientist at EPA named
9 Natasha Henry. Did you in fact meet with EPA about
10 glyphosate on or about May 2016?

11 A I'm trying to remember whether we met or
12 just talked. I actually don't remember.

13 Q Okay. Do you recall if you've had more
14 than one conversation with EPA about glyphosate?

15 A I had two conversations with this person.
16 But two for sure.

17 Q Okay. And did you tell Dr. Henry or
18 anyone else at EPA about the updated AHS findings of
19 no association between glyphosate exposure and AH --
20 and non-Hodgkin lymphoma that are set forth in that
21 2013 study we just looked at?

22 A No, because the studies weren't finished
23 and weren't published.

24 Q But we just talked about the fact that
25 EPA does not limit its anal- -- analysis to published

1 data, correct?

2 A But it makes a difference to scientists
3 to not release things before you're finished with it.
4 And that was the case here.

5 Q Did EPA ask you any questions about the
6 AHS?

7 A I don't remember.

8 Q And you are aware that EPA has -- is in
9 the process of -- of conducting its analysis and has
10 issued some findings with respect to glyphosate and
11 cancer, including non-Hodgkin lymphoma, correct?

12 A I've seen it in the press.

13 Q EPA, in reaching that determination, has
14 not had the benefit that you have of having seen the
15 updated Agricultural Health Study data showing no
16 association between glyphosate and non-Hodgkin
17 lymphoma, correct?

18 A Correct.

19 Q Now, you've also been contacted by
20 plaintiffs' attorneys in this litigation, correct?

21 A Yes.

22 Q Let me mark as the next exhibit in line,
23 Exhibit 29.

24 (Blair Exhibit No. 29 was marked for
25 identification.)

1 MR. MILLER: 28. I could be wrong.

2 MR. LASKER: This is 29.

3 THE WITNESS: This is 29.

4 MR. MILLER: Okay, 29 it is.

5 BY MR. LASKER:

6 Q And this is an e-mail exchange between
7 you and Kathryn Forgie, who is sitting at the end of
8 this table, at the Andrus Wagstaff law firm -- law
9 firm, correct?

10 A Yes.

11 Q And did you in fact meet with Ms. Forgie
12 or any other plaintiffs' attorneys in December 2015?

13 A Well, I must admit I don't remember, but
14 this sounds like I did. So I must have.

15 Q Well, let me ask you --

16 A I know I talked to her.

17 Q Separate from this document, you've
18 had -- you've had a conversation with plaintiffs'
19 counsel.

20 A Absolutely. Yes.

21 Q How many conversations have you had with
22 plaintiffs' counsel in this litigation prior to
23 today?

24 A Well, it -- I'm not sure I can give a
25 precise answer, but not many.

1 Q A half dozen?

2 A I don't think it was that many, but I
3 don't know for sure.

4 Q Three or four?

5 A That would be my guess, three or four.

6 Q And what -- what did you and plaintiffs'
7 counsel discuss during these conversations?

8 A Well, as I recall, they were asking about
9 what went on at IARC and I think whether or not I
10 would provide advice regarding this. And I said no.

11 Q Did they ask you any questions about your
12 own scientific research including the Agricultural
13 Health Study?

14 A I don't remember.

15 Q Do you recall if you shared with
16 plaintiffs' attorneys any information about either
17 the North American Pooled Project or the Agricultural
18 Health Study analyses that were still going forward?

19 A I doubt it.

20 Q You said you had three or four
21 conversations with plaintiffs' counsel.

22 A No, I said I guessed.

23 Q So the first conversation, was the issue
24 of whether or not you would serve as an expert
25 witness raised?

1 A Well, I'm not sure whether it was the
2 first conversation or which one. I --

3 Q So there were a series of conversations
4 in which you guys were discussing the possibility,
5 three to four conversations; is that fair?

6 A There was more than one. I don't
7 actually know what the number was. But adding the
8 numbers, it's more than one. That's all I know for
9 sure.

10 Q Do you recall how long these conversation
11 lasted?

12 A Not long.

13 Q Let me show you an e-mail from May of
14 2016. And this is an e-mail exchange between you and
15 a Dr. Weisenburger. Do you who Dr. Weisenburger is?

16 A I do.

17 Q Who is Dr. Weisenburger?

18 A He is a cancer researcher.

19 MR. MILLER: May I have a copy, please.
20 Exhibit 30? Maybe it is behind there.

21 MR. LASKER: I'm sorry. I did that.
22 Just -- sorry.

23 MR. MILLER: Sure. Okay. Exhibit 30.
24 (Blair Exhibit 30 was marked for
25 identification.)

1 BY MR. LASKER:

2 Q Okay. So this is an e-mail that was
3 forwarded to you from Dr. Weisenburger. Again, I'm
4 sorry, I missed it. Who was Dr. Weisenburger?

5 A Pardon?

6 Q Who is Dr. Weisenburger?

7 A He's a pathologist who does epidemiologic
8 studies like I do.

9 Q And he -- he actually is one of the other
10 investigators with you on the North American Pooled
11 Project?

12 A He is.

13 Q And so he also would be aware and would
14 have been aware of this analysis of the NAPP data
15 that we looked at earlier before the IARC
16 monograph --

17 A Well, probably, but there's a lot of
18 co-authors in that study and they get informed at
19 different times, depending on where you are in the
20 analysis, and I don't remember about this one.
21 Eventually he would be informed if he wasn't then.

22 Q And so Dr. Weisenburger here --
23 Dr. Weisenburger, these e-mails reflect, is serving
24 as an expert witness for plaintiffs' counsel,
25 correct?

1 A I think so.

2 Q You have had conversations --

3 A Yes.

4 Q -- with him where he's told you that,
5 correct?

6 A Yes.

7 Q And in this e-mail he is passing on to
8 you, he is letting you know that plaintiffs' counsel
9 have contacted him about discussing his first case,
10 correct?

11 A Yes.

12 Q What did Dr. Weisenburger tell you about
13 his meetings with plaintiffs' counsel regarding this
14 litigation?

15 MR. MILLER: Objection.

16 THE WITNESS: I -- I -- I don't remember.

17 BY MR. LASKER:

18 Q Do you recall having conversations with
19 him about the NAPP data and how and when that might
20 be published?

21 A I'm sure we had conversations about that.

22 Q Well --

23 A I don't remember details, but I'm sure we
24 had conversations.

25 Q Okay. You had mentioned earlier with

1 respect to the NAPP that there has been a number
2 of -- more than one presentation of that data to
3 date, correct?

4 A Well, two for sure. Maybe more than
5 that.

6 Q And during that process, the NAPP
7 investigators, you and Dr. Ferguson and other --
8 Dr. Weisenburger, I'm sorry, and others have been
9 looking at the data in different ways, correct, and
10 reporting it in different ways? Is that fair to say?

11 A We've been looking at the analyses that
12 have been done trying to make judgments about what it
13 says. Is that what you mean?

14 Q Well, in your presentation of the data,
15 the data you're presenting had been changing over
16 time, correct?

17 A I don't actually know whether that's true
18 or not.

19 Q Okay. Well, let me show you an e-mail
20 exchange between NAPP investigators -- actually,
21 before we get to that, let's just refer back to
22 Exhibit 29, which is the e-mail exchange between you
23 and Ms. Forgie, plaintiffs' counsel.

24 And if you look at the first e-mail in
25 that chain, it's dated -- again, it's the last page,

1 so the second to the last page or the last page of
2 the document. It's from Ms. Forgie to you, and it
3 states: "Dear Dr. Blair" -- and this is dated on
4 August 20, 2015, correct? Go to the last page.

5 So Ms. Forgie sent you this e-mail,
6 plaintiffs' counsel, on August 20, 2015, correct?

7 A August 20. I thought you said August 15.
8 August 20.

9 Q And in this e-mail, plaintiffs' counsel
10 indicates that they have spoken to you twice with
11 regard to pesticide exposure and cancer, and she
12 notes that she is an attorney with Aimee Wagstaff,
13 correct?

14 A Okay. Yes.

15 Q Okay. So I just want to put that in
16 time.

17 If we can go back now to what has been
18 marked as Exhibit 31. This is now an e-mail exchange
19 on August 26, 2015, correct? I'm sorry.

20 A I don't have 31.

21 (Blair Exhibit No. 31 was marked for
22 identification.)

23 MR. LASKER: I'm sorry, I need to give
24 you one here. Let me finish this process.

25 MR. MILLER: 31?

1 MR. LASKER: 31.

2 MR. MILLER: 31.

3 BY MR. LASKER:

4 Q So this is -- this e-mail is about a week
5 after your e-mail exchange with plaintiffs' counsel,
6 correct?

7 A Yes. Yes. August 20 -- 26th.

8 Q So if we can now look at the earliest
9 e-mail in this string, Exhibit 31, so, again, you got
10 to go back to the end and read forward, Dr. Pahwa is
11 advising you and other NAPP investigators that she
12 was going to be presenting findings about glyphosate
13 use and NHL risk at the International Society for
14 Environmental Epidemiology in August -- on
15 August 31st, 2015, correct?

16 A Yes.

17 Q And she states in her e-mail, the very
18 last line, that she is sharing her slide deck for
19 that presentation with you all in advance, quote,
20 given the sensitivity of the topic, correct?

21 A Yes.

22 Q And in your e-mail response, which is --
23 starts on the bottom of the first page of this
24 document and then continues through the second page,
25 you state that Dr. Pahwa will need to be prepared for

1 questions after the presentation and that the -- the
2 question is going to be, Do these data indicate that
3 the IARC evaluation was wrong?

4 Do you see that?

5 A It's on the first page?

6 Q It's on the second page.

7 A Yes.

8 Q And you also suggest alerting IARC in
9 advance of the meeting, correct?

10 A Yes.

11 Q Now, you do not suggest alerting Monsanto
12 to the NAPP data, do you?

13 A No.

14 Q And if you look at page -- the first page
15 of this e-mail chain, in fact, you were concerned
16 that Monsanto might be, quote, scanning programs of
17 meetings like ISEE and might find out about the NAPP
18 findings, correct?

19 A Well, if you're presenting at a meeting,
20 you can't be concerned about them finding it because,
21 again --

22 Q Doctor --

23 A -- it's at the meeting.

24 Q Dr. Blair, do you see --

25 MR. MILLER: Don't. Stop. Let him -- I

1 object.

2 Doctor, if you want to finish the answer,
3 go right ahead.

4 MR. LASKER: I'm sorry.

5 MR. MILLER: He doesn't have the right to
6 interrupt you.

7 BY MR. LASKER:

8 Q I'm sorry, did you have more to say? I
9 thought you were finished.

10 A It's -- if you're presenting at a
11 meeting, you would assume people might be able to get
12 something, and you just want to be prepared to deal
13 with questions that might come. It's known that this
14 is pretty topical.

15 Q You state in your e-mail that, quote: I
16 just suspect Monsanto has someone scanning programs
17 of meetings like ISEE and would want to get press if
18 they can. Correct?

19 A Yes. Yes.

20 Q And you were worried about that
21 possibility, correct?

22 A Worried about the person presenting not
23 being prepared to address questions that are relevant
24 to them.

25 Q And for that reason, you decided -- you

1 told Dr. Pahwa that she should alert IARC in advance,
2 correct?

3 A Because it would affect what IARC gets,
4 yeah.

5 Q Now, let me show you another e-mail that
6 branches off in this e-mail chain of Exhibit 31,
7 Exhibit 32.

8 (Blair Exhibit No. 32 was marked for
9 identification.)

10 MR. MILLER: 32.

11 MR. LASKER: 32.

12 MR. MILLER: Gotcha.

13 BY MR. LASKER:

14 Q And this e-mail chain sort of branches
15 off from the earlier e-mail chain, and the second
16 e-mail in this chain starting from -- again, we've
17 got to go to the back, so we have to read this
18 backwards, I apologize -- but the second to the last
19 page, there is an e-mail that was sent by you at
20 4:11 p.m. on August 26, 2015.

21 Do you see that?

22 A Yeah.

23 Q So that e-mail was sent -- and, I'm
24 sorry, to make you do this, if you go back to
25 Exhibit 31 -- this e-mail was sent roughly nine hours

1 after you -- after you had raised the issue of the
2 questions that Dr. Pahwa might receive about her
3 presentation, correct?

4 A Okay.

5 Q And as set forth in this e-mail now at
6 4:11 p.m., and Dr. Pahwa's responding e-mail at 4:22,
7 Dr. Pahwa had revised her slide presentation in
8 response to comments she had received from you and
9 from the other NAPP investigators, correct?

10 A Yes.

11 Q She also states that the abstract of the
12 NAPP findings for glyphosate and non-Hodgkin
13 lymphoma, quote: Does not appear on the ISEE website
14 or in the conference program. Correct?

15 A Yes.

16 Q So she addressed your concern about the
17 possibility that Monsanto might learn about these
18 NAPP findings. Correct?

19 A Yes.

20 Q Dr. Pahwa agrees with you that it would
21 be best for her not to deal with any potential press
22 at the COP conference about her NAPP findings,
23 correct?

24 A Yes.

25 Q She states, though, that she will prepare

1 some talking points, and that she will share them
2 with you and the rest of the group prior to the
3 conference, correct?

4 A Yes.

5 Q In response, you again suggest that the
6 abstract and the slide deck should be shared with
7 IARC prior to the ISEE conference, correct?

8 A Yes.

9 Q So even though you now were sure that
10 Monsanto was unlikely to learn about the NAPP
11 findings, you still wanted IARC to be prepared in the
12 event that the findings somehow got out to the
13 press --

14 A Yes.

15 Q -- correct?

16 A Yes.

17 Q And then you prepared some talking points
18 for Dr. Pahwa in case she was questioned about the
19 NAPP findings and how they relate to the IARC
20 evaluation, correct?

21 A Which -- where are you reading --

22 Q The first page now, the last e-mail: "I
23 think we also should provide some suggested talking
24 points in case" --

25 A Okay, yes. First page, yes.

1 Q So you prepared some talking points for
2 Dr. Pahwa just in case --

3 A Yes.

4 Q -- she was asked about IARC?

5 A Yes.

6 Q Now, Dr. Pahwa gave a subsequent
7 presentation about the NAPP findings in connection
8 with IARC's 50th anniversary conference in June 2016,
9 correct?

10 A Yes.

11 Q Let me show you an e-mail chain with
12 respect to that presentation. And this is going to
13 be 33.

14 (Blair Exhibit No. 33 was marked for
15 identification.)

16 BY MR. LASKER:

17 Q And this is the e-mail chain between
18 various of the NAPP investigators, including
19 Dr. Cantor, correct?

20 A Yes.

21 Q And you are on there as well.

22 A From Dr. Cantor, yes.

23 Q Who is Dr. Cantor?

24 A He is a retired epidemiologist from the
25 National Cancer Institute.

1 Q And Dr. Cantor actually was lead author
2 on one of the first studies on -- that reported data
3 on glyphosate and non-Hodgkin lymphoma, correct?

4 A Correct.

5 Q And in his original case-control study,
6 he did not find any association between glyphosate
7 and non-Hodgkin lymphoma, correct?

8 A That's what I remember.

9 Q But that data has now been pooled into
10 the NAPP, correct?

11 A Yes.

12 Q Now, in this e-mail chain, there is a
13 discussion of five abstracts that the NAPP was
14 preparing for the IARC conference, correct?

15 A Yes.

16 Q And one of these abstracts addressed the
17 NAPP findings that were going to be reported with
18 respect to glyphosate and non-Hodgkin lymphoma,
19 correct?

20 A Yes.

21 Q And Dr. Cantor in his e-mail talks
22 specifically about that abstract with respect to
23 glyphosate, correct?

24 A Yes.

25 Q And in his e-mail about the NAPP

1 findings, Dr. Cantor states that the findings with
2 respect to glyphosate and NHL, quote, are less than
3 convincing given that control for other pesticides
4 resulted in attenuated OR, which aren't in the
5 abstract. Correct?

6 A Yes.

7 Q So we discussed earlier the NAPP data in
8 June 2015 which showed no association between
9 glyphosate and non-Hodgkin lymphoma when adjusted for
10 other pesticides. You recall that, correct?

11 A Yes.

12 Q And Dr. Cantor is explaining in his
13 e-mail now in January 2016 that the NAPP data still
14 did not show any statistically significant
15 association between glyphosate and non-Hodgkin
16 lymphoma when the data was controlled for other
17 pesticides, correct?

18 A Correct.

19 Q But in presenting the NAPP data for the
20 IARC meeting, the abstract only reports odds ratios
21 without controlling for other pesticide exposures,
22 correct?

23 A I don't remember.

24 Q Well, Dr. Cantor is expressing that
25 concern in this e-mail, correct, that the data on --

1 the control data is not reported in the abstract?

2 A Well, he suggests the last sentence be
3 removed.

4 Q He states that: "Results in the second
5 abstract glyphosate -- about glyphosate are less than
6 convincing given that control for other pesticides
7 resulted in attenuated OR which aren't in the
8 abstract."

9 So this concern is that the presentation
10 of the NAPP data was not making clear that when the
11 data was controlled for other exposures, there was no
12 association between glyphosate and non-Hodgkin
13 lymphoma?

14 A I understand all that. I don't -- but
15 then he suggests it should be removed from the -- and
16 so I'm not clear whether he is suggesting remove it
17 from the abstract for this meeting or from some later
18 publication. I'm not clear about that.

19 Q But his concern was that we were
20 presenting -- the NAPP was presenting data without
21 presenting the data on controlled --

22 A Clear --

23 Q -- exposures with glyphosate and other
24 pesticides?

25 A Yes.

1 Q Okay. So let's turn to the slide deck
2 that the NAPP presented at that IARC conference.

3 (Blair Exhibit No. 34 was marked for
4 identification.)

5 MR. MILLER: And this is Exhibit 34.

6 BY MR. LASKER:

7 Q So you could take a chance to look
8 through it. This document Exhibit 34 is the
9 presentation that was made -- strike that. Hold on a
10 second. I'm not sure I have the right one. I don't
11 know if this is the right one. This is June 2016 --
12 yeah, no, I'm sorry, this is right. Okay.

13 So this is the presentation that was made
14 in June 2016 as part of the IARC @ 50 Conference,
15 correct?

16 A I think so, yes.

17 Q And unlike the June 2015 data that we --
18 that we talked about earlier which presented only the
19 controlled odds ratios accounting for other pesticide
20 exposures, this June 16 presentation also presents
21 odds ratios not controlled for those exposures,
22 correct? So it's presenting the uncontrolled data.

23 A (Perusing document.)

24 Q Do see the reports that -- both for
25 uncontrolled and for controlled for the pesticide

1 exposures, have both those data in there?

2 And if you look at the tables -- on the
3 bottom of those tables, they have ORA and ORB. So
4 ORA is the unadjusted numbers and ORB is the adjusted
5 numbers. Do you see that?

6 A Yes.

7 Q And so by presenting the unadjusted data,
8 NAPP was able to present data that it could report as
9 being statistically significant with respect to
10 glyphosate and non-Hodgkin lymphoma, correct?

11 A Where on this table it says it's adjusted
12 for --

13 Q Yes.

14 A -- 2,4-D, diazinon and malathion.

15 Q Right, that's ORB, correct?

16 There's ORA and there's ORB, and you
17 present, unlike in June 2015 when you controlled for
18 other exposures and just presented the controlled
19 data, in this presentation you've now added in a
20 presentation of the uncontrolled odds ratios,
21 correct?

22 A Oh, yes. If that's your point, yes. I
23 thought you were saying it was only presenting ORA.
24 Well, it presents both.

25 Q It presents both. And by presenting the

1 uncontrolled data, you therefore were able to present
2 NAPP data to IARC that had a numerical number that
3 was statistically significant, correct, with respect
4 to glyphosate?

5 A That is the case, yes.

6 Q And unlike the June 2015 data we looked
7 at, the June 2016 presentation does not provide any
8 odds ratios that exclude proxy respondents and relied
9 solely on the more reliable self-reported data,
10 correct?

11 A Suggested for use of proxy respondents.

12 Q It does not -- it does not present data
13 solely for self-respondent data, though, correct?

14 A It's suggested for use of proxy -- proxy
15 respondents.

16 Q I understand. My question is, it does
17 not present data solely from self-reported --

18 A That --

19 Q -- correct?

20 A That adjustment does literally the same
21 thing.

22 Q Well, we know from the June 2015 data
23 that when self-responded only data from the NAPP is
24 used, the result is virtually null, with odds ratio
25 of 1.04 for glyphosate and non-Hodgkin lymphoma,

1 correct?

2 A Yes.

3 Q But that information is no longer in the
4 presentation in 2016; that's been -- correct?

5 A It's adjusted for proxy respondents.

6 Q That data point, 1.04, showing a null
7 result from the most reliable exposure data for
8 glyphosate and non-Hodgkin lymphoma is no longer in
9 the presentation.

10 MR. MILLER: Objection. Asked and
11 answered. He said it's been adjusted.

12 MR. LASKER: Okay. Now we have two
13 witnesses, but I will ask the question --

14 MR. MILLER: No, you don't have two
15 witnesses.

16 THE WITNESS: Just say it again.

17 MR. MILLER: You have one lawyer who is
18 harassing one witness. He said it had been adjusted.

19 BY MR. LASKER:

20 Q Dr. Blair --

21 A Say it again.

22 Q -- the data with the 1.04 odds ratio that
23 was in the presentation in June 2015 that showed a
24 complete null result of ever versus never use for
25 glyphosate and non-Hodgkin lymphoma, is that 1.04

1 data point in this presentation?

2 MR. MILLER: Objection. Asked and
3 answered.

4 Go ahead, Doctor.

5 THE WITNESS: I don't actually know
6 whether it is, but there are a lot of data points
7 that are less than 1.0.

8 You know, so is the one you're mentioning
9 in there, I -- I would have to pour through this.
10 You may be right, but I'm saying there are a lot of
11 others in here that are less than 1.0.

12 BY MR. LASKER:

13 Q It's fair to say, Dr. Blair, that the
14 NAPP has presented different data, and presented
15 different data now in June 2016 for this IARC meeting
16 than it had presented in June 2015, correct?

17 A Yes. And that's because analyses move
18 along and you do different things.

19 Q Okay. And this presentation in June 2016
20 was made -- and one of the authors, by the way, or
21 one of the listed authors on this June 2016
22 presentation is Dr. Weisenburger, correct?

23 A Yes.

24 Q And Dr. Weisenburger as of this time we
25 know was already serving as an expert witness for

1 plaintiffs, correct?

2 A Probably, yeah.

3 Q Let's mark as the next exhibit in line an
4 e-mail you received from Dr. Weisenburger on
5 August -- in August 2016.

6 (Blair Exhibit No. 35 was marked for
7 identification.)

8 BY MR. LASKER:

9 Q And this is Exhibit 35.

10 MR. MILLER: 35.

11 MR. LASKER: 35.

12 MR. MILLER: Got it.

13 BY MR. LASKER:

14 Q And again, so the record is clear, at the
15 time Dr. Weisenburger wrote this e-mail to you in
16 August 2016, he was serving as an expert witness for
17 plaintiffs in this litigation, correct?

18 A I -- I don't know that, but you must have
19 the dates.

20 Q Well, we can go back to this. He had
21 sent you an e-mail in -- in May 2016. I think that
22 was Exhibit 30 if you want to refer back.

23 A No, that's --

24 Q May 2016.

25 A I'm just saying you asked me point blank

1 all these dates --

2 Q Okay.

3 A -- and immediately I do it, you start
4 fumbling through the paper. Just say, No, we got an
5 e-mail, and got it, and then we will move on. Okay?

6 Q Well, I was trying to find the e-mail to
7 help refresh your recollection.

8 A No, you weren't.

9 Q Dr. Blair -- Dr. Blair, in May of 2016,
10 you had an e-mail that made it clear to you that
11 Dr. Weisenburger was serving as an expert for
12 plaintiffs in this litigation, correct?

13 A Yes.

14 Q Okay. So in August of -- let me get my
15 dates correct -- in August of 2016, you certainly
16 were aware of the fact that Dr. Weisenburger was
17 serving as an expert witness for the plaintiffs in
18 this litigation, correct?

19 A Yes.

20 Q And in his e-mail to you, he is pressing
21 for publication of the NAPP data as it had been most
22 recently presented at the IARC meeting, correct?

23 A Yes.

24 Q Dr. Weisenburger says, quote: It is
25 important to get our U.S.-Canadian paper on this

1 submitted soon as to be considered by the European
2 authorities in their review of glyphosate. Correct?

3 A Yes. To be --

4 MR. MILLER: You read the quote wrong.

5 MR. LASKER: I'm sorry. I will read it
6 again.

7 THE WITNESS: Yeah.

8 BY MR. LASKER:

9 Q I will read it again. The earlier
10 e-mail, and that's --

11 A Yes. Okay. I'm sorry.

12 No, it's okay, it's down in the bottom.
13 Only just "European authorities" was not in the line
14 you were reading and I was trying to follow.

15 Q To be fair --

16 A But it's down below. It's okay.

17 Q To be fair, the e-mails below are between
18 Christopher Portier and Dr. Weisenburger, correct?

19 A Yes. Yes.

20 Q And Christopher Portier is also an expert
21 witness for plaintiffs, correct?

22 A I don't -- maybe I know that. But I
23 don't know.

24 Q I will represent to you that he has
25 because he's subpoenaed already for plaintiffs in

1 this litigation.

2 A Okay.

3 Q So the first e-mail is between Chris
4 Portier and Dennis Weisenburger, two plaintiffs'
5 experts in the litigation, talking about the EU's
6 review of glyphosate, correct?

7 A Yes.

8 Q And then Dr. Weisenburger turns to you
9 and sends an e-mail saying, quote: It seems
10 important to get our U.S.-Canadian paper on this
11 submitted soon so it can be considered in this
12 review. Correct?

13 A Correct.

14 Q And he is talking about the NAPP paper
15 that was now being --

16 A I -- I assume so. I'm sure that's the
17 case, yeah.

18 Q So -- and again, as one of the
19 investigators on the NAPP, you and Dr. Weisenburger
20 have the ability to publish data or not publish data
21 as you -- as you choose, correct?

22 A No. Dr. Weisenburger and I and the many
23 other authors on the paper make the decision when
24 papers are ready for submission for publication.

25 Q So you certainly have the ability to try

1 and get data published at --

2 A Absolutely.

3 Q -- whatever time when you decide to do
4 so.

5 A Absolutely.

6 Q And prior to the IARC working group
7 meeting, you had data from the North American Pooled
8 Project, you had data from the Agricultural Health
9 Study, and you decided, for whatever reason, that
10 that data was not going to be published at that time,
11 and therefore was not considered by IARC, correct?

12 A No. Again, you foul up the process.
13 What we decided was the work that we were doing on
14 these different studies were not yet -- were not yet
15 ready to submit to journals. Even after you decide
16 to submit them to journals for review, you don't
17 decide when it gets published.

18 Q You submit --

19 A But first you have to decide is it ready
20 for submission; that the -- all the authors are
21 satisfied with the analysis and interpretation, and
22 that's the process these papers are in.

23 Q You submitted AHS data for pesticides in
24 2014, correct?

25 A I -- again, I don't know what you're

1 referring to AHS data on. Many AHS data on
2 pesticides are submitted.

3 Q Okay. There's an updated data -- updated
4 study on the Agricultural Health Study data on
5 non-Hodgkin lymphoma and pesticides, and you decided
6 to submit that data in 2014, and in fact, that study
7 was published in 2014, correct?

8 A Yes.

9 Q All right. And you decided not to submit
10 data that had been included in a draft with that same
11 pesticide data for publication, correct?

12 A Yes.

13 Q And you to this day have not submitted
14 that data for publication, correct?

15 A Correct.

16 Q But in this exchange in August 2016, we
17 have two plaintiffs' counsel discussing how they can
18 get certain data published so that it could be
19 considered, correct?

20 MR. MILLER: Object to the form of the
21 question.

22 BY MR. LASKER:

23 Q That is Chris Portier and Dennis
24 Weisenburger trying to figure out, now that the NAPP
25 data has been reviewed and altered from August of --

1 from 2015 to 2016, they're now talking about how can
2 we get this published, aren't they?

3 MR. MILLER: Object to the form of the
4 question.

5 THE WITNESS: Well, that's not the words
6 I would use to describe what they're trying to do,
7 but that is okay.

8 MR. LASKER: Let's take a brief break. I
9 may be done.

10 THE VIDEOGRAPHER: Okay. The time is
11 3:10 p.m. We're going off the record.

12 (Recess.)

13 THE VIDEOGRAPHER: The time is 3:16 p.m.,
14 and we're back on the record.

15 BY MR. LASKER:

16 Q Dr. Blair, I need you to turn to another
17 issue briefly. What is the Ramazzini Institute?

18 A It's not an institute. It's an
19 association, a professional association.

20 Q Have you ever done work for the Ramazzini
21 association?

22 A No.

23 Q Have you ever collaborated with the
24 Ramazzini association with respect to any scientific
25 research that you can recall?

1 A Not that I -- I don't think so. I -- I'm
2 a member of it. I don't think I've ever done
3 anything with them.

4 Q So you're -- you're a member. Does that
5 mean you've gone to meetings?

6 A I've been to one meeting.

7 Q Okay. Have you had any discussions with
8 anyone at Ramazzini regarding glyphosate?

9 A I don't remember it, but I guess it's
10 possible.

11 MR. LASKER: Thank you, Doctor. I have
12 no further questions.

13 I do have to -- just before I forget,
14 there was one document that -- and we can do this
15 after you are done, but I am remembering now, so I
16 want to do it. There was one document that you used
17 in your direct examination that was an e-mail that's
18 confidential and under the protective order. So just
19 that document, and it was really like maybe two or
20 three questions about that document, we will
21 designate as "Confidential" under the protective
22 order.

23 MR. MILLER: That is fair. Okay.

24 MR. LASKER: And that's that.

25 MR. MILLER: Great. Let's switch seats

1 and keep this moving.

2 THE VIDEOGRAPHER: The time is 3:18 p.m.
3 We're going off the record.

4 (Recess.)

5 THE VIDEOGRAPHER: The time is 3:22 p.m.,
6 March 20th, 2017, and we are on the record with
7 video 4.

8 REDIRECT EXAMINATION

9 BY MR. MILLER:

10 Q Good afternoon, Dr. Blair.

11 A Afternoon.

12 Q Again, I'm Michael Miller, and I started
13 out today asking questions, and I'm going to follow
14 up in response to the questions from Monsanto's
15 attorneys, okay?

16 A Okay.

17 Q Okay. Now, you and I never met each
18 before today, have we?

19 A I don't think so.

20 Q No. I'm about your age. I'm not sure --
21 yeah, our memories are what they are. But we've
22 never met each other, right?

23 A Right.

24 Q Okay. And we've never talked on the
25 phone, right?

1 A No, I don't think so.

2 Q Okay. And to the extent you talked to
3 one lady lawyer out of Denver that asked you to be an
4 expert for plaintiffs, you said you would rather not
5 do that, right?

6 A Right.

7 Q You wanted to stay impartial and neutral,
8 didn't you?

9 A That's the way I look at it, yes.

10 Q Your science is what's important to you?

11 A Yes.

12 Q Okay. Now, let's get over some of the
13 substance that was brought up by Monsanto's
14 attorneys.

15 One of the issues that he talked about,
16 and he showed you Exhibit 26, was an issue that
17 someone at IARC had e-mailed you about after -- is it
18 fair to say after IARC issued its report that
19 probably -- that glyphosate probably caused
20 non-Hodgkin lymphoma, there was quite a bit of
21 ruckus, if you will, about all that, wasn't there?

22 MR. LASKER: Objection to form.

23 THE WITNESS: Yes.

24 BY MR. MILLER:

25 Q Okay. And one of the issues was that

1 there was this negative AHS study that you've been
2 talking about a lot with Monsanto's lawyers, right?

3 A Yes.

4 Q And there were the -- the positive
5 studies on non-Hodgkin lymphoma, right?

6 A Yes.

7 Q So the issue is we're weighing the
8 positive case-control studies, more than a few of
9 them that the jury has heard of by now, that show the
10 association statistically significant between
11 glyphosate and non-Hodgkin lymphoma, and the negative
12 study, AHS, which really didn't show a statistically
13 significant association, right?

14 A Correct.

15 Q And you, Dr. Blair, are one of the
16 authors of that AHS study, right?

17 A Yes.

18 Q Yet when it came time to vote as a
19 volunteer scientist on the International Agency for
20 the Research for Cancer, you voted unanimously with
21 16 of your peers that there was a probable
22 association between glyphosate and non-Hodgkin
23 lymphoma, right?

24 A Well, I voted that way. I think it was
25 unanimous. I don't actually remember.

1 Q I understand. I understand.

2 And you're not the only author of the AHS
3 study that -- that thinks there is an association
4 between glyphosate and non-Hodgkin lymphoma, are you,
5 sir?

6 MR. LASKER: Objection to form.

7 THE WITNESS: I actually don't know the
8 answer to that.

9 MR. MILLER: What's our next number
10 exhibit?

11 MR. LASKER: 36.

12 MR. MILLER: Thank you.

13 All right. 36.

14 (Blair Exhibit No. 36 was marked for
15 identification.)

16 BY MR. MILLER:

17 Q And I might not be pronouncing this
18 right, but Michael Alavanja?

19 A Alavanya (phonetic).

20 Q Excuse me. Michael Alavanja is one of
21 the authors of the AHS study, isn't he?

22 A He is.

23 Q No. 36. All right. Here is an article
24 that Dr. Alavanja wrote that came out -- let's make
25 sure we get the date right -- in 2013? Yes, okay.

1 Which was about -- well, which was the same year as
2 you had your AHS data, right, that you talked about
3 so much --

4 MR. MILLER: Excuse me, here's a copy for
5 counsel.

6 MR. LASKER: Thank you.

7 BY MR. MILLER:

8 Q And here's a copy for you, Dr. Blair.
9 -- the same year that you had that --
10 that AHS study, right?

11 A Yes, this paper is in the same time
12 frame, '13.

13 MR. LASKER: And I'm going to object to
14 form. Questioning a fact witness about a paper that
15 he is not an author of. Lack of foundation.

16 BY MR. MILLER:

17 Q And here's what he says on page 5 in his
18 table about glyphosate --

19 MR. LASKER: Where are you?

20 MR. MILLER: Table 5.

21 MR. LASKER: What page is it?

22 MR. MILLER: Let's count them out. Let's
23 count them out. One, two --

24 MR. LASKER: That's not going to work. I
25 thought there was a page number on the bottom.

1 MR. MILLER: No, sir, I don't have one.
2 When you have -- when you have Table 5, let me know,
3 and we will get back to work here.

4 MR. LASKER: Table 5?

5 BY MR. MILLER:

6 Q But this author of the AHS study in the
7 same year that you have --

8 MR. LASKER: I'm sorry. Is this the
9 glyphosate on the middle of the page?

10 MR. MILLER: Table 5. Are you -- when
11 you've found Table 5, I'm going to ask my question.
12 Are you ready, Counsel?

13 MR. LASKER: Okay.

14 MR. MILLER: Okay.

15 BY MR. MILLER:

16 Q Table 5, this author of the AHS in the
17 same year that this so-called new data comes out in
18 2013 says: "Glyphosate is positively associated with
19 non-Hodgkin lymphoma. That's the epidemiologic
20 evidence."

21 Do you see that, sir?

22 MR. LASKER: Objection to form.

23 Incomplete reading of the exact line that you're
24 looking at.

25 BY MR. MILLER:

1 Q You can answer, Doctor.

2 A All right. I'm actually trying to find
3 it. Is it on the first page of the table or the
4 second?

5 Q I tell you what, it's easier if we all
6 look at the screen.

7 A Oh, oh, sorry. All right.

8 Q I said Table 5, Dr. Alavanja says
9 "epidemiologic evidence." Do you see that, sir?

10 A Yes.

11 Q And he lists --

12 A Yeah. Okay.

13 MR. LASKER: 47. Reference Windstar.

14 BY MR. MILLER:

15 Q And he says: "Glyphosate positively
16 associated with non-Hodgkin lymphoma."

17 MR. LASKER: Objection to form.

18 THE WITNESS: That's what he says.

19 BY MR. MILLER:

20 Q Yes, sir. And following up on counsel's
21 questions, you certainly never wrote a letter to
22 Dr. Alavanja, your co-author, and said, Gee, you're
23 wrong when you say that glyphosate is positively
24 associated with non-Hodgkin lymphoma, right?

25 MR. LASKER: Misrepresenting a document.

1 Objection to form.

2 BY MR. MILLER:

3 Q You can answer.

4 A I did not.

5 Q Okay. And I think -- well, the jury is
6 going to hear a lot about this, but I want to ask
7 you, this AHS study was a cohort study, right?

8 A Yes.

9 Q And these other studies, the case-
10 control studies upon which the positive association
11 with non-Hodgkin lymphoma, it's a different kind of
12 epidemiological study, right, as compared to a cohort
13 study?

14 A Yes.

15 Q And that one of the problems -- all
16 studies have problems and no studies are perfect. Is
17 that fair?

18 A Fair.

19 Q Okay. One of the problems of cohort
20 studies is they've got to be powered up enough to
21 find statistically significant information that we as
22 scientists can rely upon, right?

23 A True for all studies, yes.

24 Q Sure. But if they're not powered up
25 enough, the information comes back and it's not

1 statistically significant, right?

2 A Yes.

3 MR. LASKER: Objection to form.

4 THE WITNESS: It's harder to find
5 statistical significance, yes.

6 BY MR. MILLER:

7 Q Sure. And a responsible scientist is not
8 going to rely upon information that is not
9 statistically significant when he has statistically
10 significant information he can look at, right?

11 MR. LASKER: Objection to form.

12 THE WITNESS: Yes.

13 BY MR. MILLER:

14 Q Sure. And one of the other problems with
15 cohort studies like the AHS study is loss to
16 follow-up. You've heard that phrase before, haven't
17 you?

18 A Yes.

19 Q Tell the jury what "loss to follow-up"
20 means, Doctor.

21 MR. LASKER: Objection to form. Calling
22 for expert opinion now.

23 BY MR. MILLER:

24 Q You can answer.

25 A The --

1 MR. LASKER: Beyond the scope.

2 THE WITNESS: In the cohort studies, that
3 you have to keep following people, and in an open
4 society, it's hard to do.

5 BY MR. MILLER:

6 Q And, look, we know you and Dr. Alavanja
7 are hard-working scientists that are working on this
8 issue when you prepared that cohort study, the AHS
9 study, but the truth is you had loss to follow-up.

10 A We did.

11 Q Yeah. And the truth is the information
12 that counsel kept asking about in a hundred different
13 ways for the last several hours was not statistically
14 significant, was it?

15 We can go back and look at a lot of
16 numbers, but that 2013 data was, by and large, not
17 statistically significant.

18 A It was no excess, but it wasn't a
19 statistically significant deficit, I think.

20 Q Sure.

21 A Is that correct.

22 Q I think. I think that's a fair way to
23 put it, Doctor.

24 Let's look at the NAPP study. Now, the
25 NAPP study is the North American Pooled Project which

1 is looking again scientifically at this issue of
2 glyphosate and non-Hodgkin lymphoma, right?

3 A It's one of the pesticides that can be
4 looked at, yes.

5 Q And unlike the voluminous data in the AHS
6 study that had the problems of loss to follow-up that
7 was not statistically significant, the abstract for
8 the NAPP study shows statistically significant
9 information, right, sir?

10 MR. LASKER: Objection to form, misstates
11 the document.

12 THE WITNESS: I -- I've seen a lot of
13 stuff. I sort of generally know what studies I've
14 been involved with show. I feel uncomfortable giving
15 a "yes" or "no" answer without the evidence in front
16 of me to look at. I think that's correct.

17 BY MR. MILLER:

18 Q Totally fair, Doctor. And let me then
19 show you that statistically significant information,
20 and we can look at it together, and I have a --

21 MR. LASKER: May I have a document?

22 MR. MILLER: Of course. Of course, you
23 can.

24 MR. LASKER: What's the date of --

25 MR. MILLER: 37.

1 MR. LASKER: What is the date on this
2 one?

3 (Exhibit No. 37 was marked for
4 identification.)

5 BY MR. MILLER:

6 Q All right. So here we are, Doctor.
7 Statistically significant information from a study
8 that you authored with others. And this is an
9 abstract, right, sir?

10 A Yes.

11 Q Explain to the jury what an abstract is.

12 A Different scientific associations have
13 meetings of their members, and at those meetings
14 there will be verbal presentations, and you get
15 accepted to be on the program by submitting an
16 abstract to decide who gets to be on the program.
17 And these are the abstracts. This is one of those
18 abstracts.

19 Q Sure.

20 A It's not a full paper, but it's a -- a
21 synopsis of some work someone has done they're
22 willing to talk about.

23 Q All right, sir. And it's presented at
24 the International Society for Environmental
25 Epidemiology. Right, sir?

1 A Yes.

2 Q And that was at their 2015 conference,
3 right, sir?

4 A I think so, yes.

5 Q All right, sir. And so the jury
6 understands, it was an evaluation of glyphosate,
7 which is the active ingredient in Roundup, right?

8 A Yes.

9 Q And the risk of non-Hodgkin lymphoma --

10 A Yes.

11 Q -- major histological subtypes in the
12 North American Pooled Project, right?

13 A Correct.

14 Q And you are one of the authors, Aaron
15 Blair from the United States Cancer Institute, right?

16 A Yes.

17 Q And Dennis Weinberger -- I'm sorry,
18 Weisenburger from the City of Hope Hospital. Right?

19 A Yes.

20 Q And among many others, right?

21 A A number of others.

22 Q Yes, sir.

23 And what you scientists found
24 statistically significant and presented to the
25 International Society for Environmental Epidemiology

1 was several findings, results. Cases who ever use
2 glyphosate had elevated non-Hodgkin lymphoma risk
3 overall, with an odds ratio of 1.51 statistically
4 significant. Right?

5 A Yes.

6 Q And as a scientist, statistical
7 significance is important, isn't it?

8 A Yes.

9 Q The highest risks were found for other
10 subtypes, "other" meaning other types of non-Hodgkin
11 lymphoma?

12 A It means if we looked at several
13 different subtypes, and the one that's sort of the
14 catchall category was the one that had a
15 statistically significant elevation.

16 Q An odds ratio of 1.9 are almost a
17 doubling of the risk, right?

18 A Correct.

19 Q Statistically significant?

20 A Yes.

21 Q All right. Subjects who used glyphosate
22 for greater than five years had an increased odds
23 ratio that was higher, 2.58, right?

24 A Yes.

25 Q And that shows as dose-dependent

1 response, right?

2 A That is -- you did say "subtype," right?

3 Q Yes, sir.

4 A Yeah, okay. Yes.

5 Q And dose-dependant response is strong
6 evidence of causality is what the preamble to the
7 IARC tells us, right?

8 A Yes.

9 MR. LASKER: Objection to form.
10 Objection to the line of questioning to the extent
11 that plaintiffs now apparently are using or trying to
12 use Dr. Blair as an expert witness. Beyond the scope
13 of the litigation.

14 MR. MILLER: Did you get the answer?

15 THE REPORTER: Yes.

16 BY MR. MILLER:

17 Q Okay. "Compared to non-handlers, those
18 who handled glyphosate for greater than two days/year
19 had significantly elevated odds of non-Hodgkin
20 lymphoma overall, odds ratio of 2.66."

21 Was that statistically significant,
22 Doctor?

23 A Yes.

24 Q And it goes on to tell us about various
25 subtypes of non-Hodgkin lymphoma, right?

1 A Correct.

2 Q What's FL?

3 A Follicular lymphoma.

4 Q Okay. And that odds ratio was 2.36?

5 A Correct.

6 Q And that's statistically significant?

7 A Yes.

8 Q And DLBCL, what's that?

9 A Diffuse B-cell chronic leukemia.

10 Q Trip -- triple the risk of diffuse B-cell
11 non-Hodgkin lymph --

12 A Lymphoma, yeah.

13 Q Right, sir?

14 Statistically significant?

15 A Yes.

16 Q As a result of exposure to glyphosate?

17 A Yes.

18 Q And this is information that was reported
19 out after IARC found the positive association between
20 glyphosate and non-Hodgkin lymphoma, right?

21 A Yes.

22 Q Okay. But you couldn't tell IARC about
23 this positive finding from this NAPP study because it
24 hadn't been published in March when you were in your
25 IARC meetings in Lyon, France, correct?

1 A Correct.

2 Q Scientists follow protocols, right?

3 A Correct.

4 Q Do what you say, say what you do.

5 MR. LASKER: Object to form.

6 THE WITNESS: Well, you want to make sure
7 that the analysis is complete and the interpretation
8 is the best you can make it.

9 BY MR. MILLER:

10 Q You are not as quite as old as I, but do
11 you remember Paul Harvey?

12 A I do.

13 Q "The rest of the story," as he liked to
14 say.

15 Monsanto's lawyer showed you Exhibit 34,
16 a PowerPoint by Dr. -- is it Patchwa?

17 MR. LASKER: Pahwa.

18 THE WITNESS: Pahwa.

19 BY MR. MILLER:

20 Q I'm sorry, I didn't mean to mispronounce
21 it. My apologies.

22 We will get this thing where you can look
23 at it.

24 (Counsel conferring.)

25 BY MR. MILLER:

1 Q So he showed you this, which is
2 Exhibit 34, from the doctor --

3 MR. MILLER: Well, I know it is. I know
4 it is.

5 (Counsel conferring.

6 BY MR. MILLER:

7 Q Exhibit 16 is a detailed evaluation of
8 glyphosate using the risk of non-Hodgkin lymphoma in
9 the North American Pooled Project presented in June
10 of 2015. Do you see that?

11 A Yes.

12 Q Okay. What counsel didn't show you was
13 in that PowerPoint there was in fact a statistically
14 significant increased risk for non-Hodgkin lymphoma
15 with use of glyphosate, right, sir?

16 MR. LASKER: Objection to form.

17 THE WITNESS: For some subtypes.

18 BY MR. MILLER:

19 Q And that's for the diffuse B-cell --

20 A Yep.

21 Q -- and others?

22 A And other.

23 Q Okay. For others, it was over double the
24 risk and statistically significant, right?

25 MR. LASKER: Objection to form,

1 mischaracterizes the document.

2 THE WITNESS: Yes.

3 BY MR. MILLER:

4 Q Also in that PowerPoint about this North
5 American Pooled Project was the frequency, that is
6 the number of days a year, of glyphosate handling and
7 NHL risk. Do you see that, sir?

8 A Yes.

9 Q And what they're telling us is here that
10 there was overall almost a doubling of the risk
11 statistically significant if you handled a glyphosate
12 for greater than two days; is that right, sir?

13 A Yes.

14 Q And for diffuse B-cell, it was 2.49
15 statistically significant, right?

16 A Correct.

17 Q What does the trend test tell us?

18 A It's a measurement across the different
19 exposure categories and whether or not that trend
20 line is statistically significant.

21 Q Okay. What is the difference between
22 proxy and self-respondents?

23 A Proxy would be someone else reporting for
24 the subject in the study where it's often the spouse
25 or child or brother or sister.

1 Q Because the person who got non-Hodgkin
2 lymphoma may not be alive to report.

3 A May not be alive or may be incapacitated
4 and can't report.

5 Q Sure. So what would be the significance
6 in comparing in the North American Pooled Project
7 proxy information versus self-respondent information?

8 A Well, the general assumption -- in fact,
9 the data supported it -- that proxy respondents tend
10 to make more errors and so would tend to drive the
11 risk down, where you get more accurate reporting and
12 more accurate analyses based on information from the
13 individuals themselves.

14 Q And so when proxies were compared to
15 self-respondents for frequency of greater than two
16 days use, we had a statistical doubling of the risk
17 from proxy and self-respondents, right?

18 A Yes.

19 Q At one point --

20 A Actually, sorry. Let me --

21 Q Sure, go ahead.

22 A That's one -- one component is proxies
23 can't tell you as much, which means more exposure
24 misclassification, which drives the risk down. The
25 other is the worry that proxies will remember things

1 that aren't correct, and seize upon the topic of the
2 day and falsely report things in such numbers that
3 gives you a false positive. But the thing about
4 case-control studies is it can go in both directions.

5 Q And you did not find a problem with
6 self-reporting in the case-control studies when you
7 reviewed this for IARC. Fair enough?

8 MR. LASKER: Objection to form.

9 THE WITNESS: Well, we did some
10 methodologic aspects to our studies to see if there
11 was case response bias.

12 BY MR. MILLER:

13 Q And what did you find?

14 A We did not find case response bias.

15 Q You did not find a problem. Right?

16 A With case response bias.

17 Q Okay. So -- and case response bias was
18 the allegation of bias against the case-control
19 studies, isn't it?

20 MR. LASKER: Objection to form.

21 THE WITNESS: It's one of them.

22 BY MR. MILLER:

23 Q And you didn't find it?

24 A We did not find it.

25 Q And this PowerPoint supports the position

1 of not finding that bias because in fact when you
2 compared self-respondents only, you got remarkably
3 similar to proxy and self-respondents, 1.98 and 2.05,
4 right?

5 MR. LASKER: Objection to form,
6 incomplete discussion of the document.

7 THE WITNESS: Yes.

8 BY MR. MILLER:

9 Q Okay. I want to -- I want to go back to
10 Exhibit 27 that -- that Monsanto's counsel showed
11 you. It was a question and answer that was prepared
12 by IARC.

13 Do you remember generally speaking to him
14 about this document?

15 A (No response.)

16 Q Sir?

17 A Yeah.

18 Q Do you generally remember speaking to
19 Monsanto's lawyer about this document?

20 A Yeah.

21 Q Okay.

22 A Sorry.

23 Q That's all right. It's a long day.
24 We're doing the best we can.

25 Let's go to page 2 of this document

1 prepared by IARC in response to the allegations that
2 this -- well, let's just ask about it.

3 This question and answer: "Several of
4 the epidemiological studies considered by the IARC
5 expert working group showed increased cancer rates in
6 occupational settings after exposure to glyphosate in
7 herbicides. Can this be attributed to glyphosate as
8 a single ingredient or could it be due to other --
9 other chemicals in the formulations? And that was
10 the question.

11 And the answer that IARC --

12 MR. LASKER: Objection to form, beyond
13 the scope.

14 BY MR. MILLER:

15 Q And the answer that IARC was, quote:
16 Real world exposures that people experience are to
17 glyphosate in formulated products. Studies of humans
18 exposed to different formulations in different
19 regions at different times reported similar increases
20 on the same type of cancer, non-Hodgkin lymphoma.

21 That's what you saw, right, Doctor?

22 MR. LASKER: Objection to form.

23 THE WITNESS: Yes.

24 BY MR. MILLER:

25 Q And one of the questions that IARC wanted

1 a formal answer to was the question posed by
2 Monsanto's attorneys as to whether the Agricultural
3 Health Study was the most powerful study, and IARC
4 said no. Isn't that right, Doctor?

5 MR. LASKER: Objection to form.

6 THE WITNESS: It's -- it's a powerful
7 study. And it has advantages. I'm not sure I would
8 say it was the most powerful, but it is a powerful
9 study.

10 BY MR. MILLER:

11 Q Sure. Unfortunately, not powered up
12 enough to get statistically significant information
13 in 2013.

14 MR. LASKER: Objection to form. In 2005
15 or 2013?

16 MR. MILLER: I said 2013.

17 MR. LASKER: 2013. Okay. Well,
18 that's --

19 THE WITNESS: I would not say it in that
20 way because it assumes that if you make the study
21 bigger, you will get the same answer. And that's
22 not --

23 BY MR. MILLER:

24 Q Oh.

25 A -- scientific.

1 Q Oh, I --

2 A Whatever you find now with some study,
3 you make it bigger, the relative risk may go in
4 either direction.

5 Q Understood.

6 A So it's --

7 Q I understand.

8 A Power is power, but it doesn't direct
9 where it's going to fall.

10 Q Absolutely. And what you're looking to
11 get is enough power to get statistically significant
12 information --

13 A Absolutely.

14 MR. LASKER: Objection to form.

15 THE WITNESS: Yes.

16 BY MR. MILLER:

17 Q Okay. Let's go back to see what IARC's
18 official position is on whether the AHS was the most
19 powerful study, and the answer provided is: "The
20 Agricultural Health Study has been described as the
21 most powerful study, but this is not correct."

22 That's --

23 MR. LASKER: Objection to form. Can we
24 clarify which study you're talking about now?

25 BY MR. MILLER:

1 Q The official position of IARC, isn't it,
2 Doctor?

3 A You're asking me if that is the official
4 position --

5 Q Yes, sir.

6 A -- of IARC?

7 MR. LASKER: Objection to form.

8 THE WITNESS: Yes, apparently so.

9 MR. MILLER: All right, sir. All right.
10 (Counsel conferring.)

11 BY MR. MILLER:

12 Q Remember counsel for Monsanto spent a
13 long time talking to you about the draft of the AHS
14 study that you have not released because -- you
15 explained to us, I guess, why. It -- it's still --
16 this still hasn't been published, has it?

17 A Well, we published half of it. We
18 published on the insecticides.

19 Q Sure.

20 A But not on the herbicides.

21 Q I understand. But in this -- yes, sir.
22 I understand.

23 In this draft that counsel talked to you
24 about, he didn't show you the sentence, you write in
25 there --

1 MR. LASKER: Where are you?

2 MR. MILLER: On page 20, bottom of the
3 page.

4 BY MR. MILLER:

5 Q -- quote: Cautious interpretation of
6 these results is advised. Since the number of
7 exposed cases for each subgroup of NHL --

8 MR. LASKER: Objection to form. Where
9 are you?

10 BY MR. MILLER:

11 Q -- for each subgroup of NHL in the AHS is
12 still relatively small.

13 MR. MILLER: It's pages 20 and 21.

14 BY MR. MILLER:

15 Q That's what you --

16 MR. LASKER: Objection to form.

17 BY MR. MILLER:

18 Q That's what you wrote, right, Doctor?

19 MR. LASKER: Objection to form,
20 mischaracterizing the document.

21 THE WITNESS: Well, this was in -- this
22 is in the document.

23 BY MR. MILLER:

24 Q Yes, sir.

25 A Right, it was in the document.

1 Q That's right.

2 A That's what that non-finished document
3 says.

4 Q Yes, I understand.

5 A Yes.

6 Q And the reason you caution people because
7 this is a draft document, isn't it, sir?

8 A Yes. Yeah.

9 MR. LASKER: Objection.

10 BY MR. MILLER:

11 Q And the data in this document only goes
12 to 2008, right, sir?

13 A I think that's correct.

14 Q I understand.

15 A I don't remember for sure.

16 Q And I think you've -- I think you've
17 already said as much, but we're looking at an old
18 interview that you did --

19 MR. LASKER: Do you have a document for
20 me?

21 MR. MILLER: In a minute when I use one.

22 MR. LASKER: Okay.

23 BY MR. MILLER:

24 Q Recall by -- recall bias, it doesn't add
25 up to much. Isn't that basically your experience?

1 MR. LASKER: Objection to form, beyond
2 the scope, calling for expert opinion.

3 THE WITNESS: In our evaluation of it, it
4 doesn't occur very often.

5 BY MR. MILLER:

6 Q Okay. And when it -- when it does
7 happen, it can cause the association between the
8 agent and the disease to actually look smaller than
9 it really is or look a little larger than it really
10 is. It can go in either direction.

11 A It can go in either direction.

12 MR. LASKER: Objection to form, calling
13 for an expert opinion, beyond the scope of the
14 deposition.

15 BY MR. MILLER:

16 Q You know what SEER data is, right?

17 A Yes.

18 Q In SEER data, since 1975 to present, the
19 number of cases of death by non-Hodgkin lymphoma in
20 this country have doubled, haven't they?

21 MR. LASKER: Objection to form.
22 Objection, beyond the scope --

23 BY MR. MILLER:

24 Q You can answer.

25 MR. LASKER: -- of the deposition as

1 noticed, beyond the scope of my direct examination
2 and without a document.

3 BY MR. MILLER:

4 Q You can answer.

5 A Both mortality and incidence has gone up.

6 Q This, I believe, was Exhibit 13. Counsel
7 marked some notes from some other fellow that was
8 on -- invited to be a member of IARC.

9 Do you remember that general line of
10 questions?

11 A Yes.

12 Q Okay. So without any lawyers around,
13 this fellow made some notes. What was his name
14 again?

15 A It was Ross, I think.

16 Q He said --

17 A Last name Ross.

18 Q He said: "Case-control glyphosate,
19 non-Hodgkin lymphoma." Right?

20 A Yes.

21 Q That wraps it up, doesn't it really?

22 MR. LASKER: Object to form.

23 THE WITNESS: Well, that's what he
24 thought.

25 BY MR. MILLER:

1 Q That's what the panel unanimously
2 thought, right?

3 MR. LASKER: Objection to form.

4 THE WITNESS: Yes.

5 BY MR. MILLER:

6 Q Okay. Has anything you've been shown by
7 Monsanto's lawyers in the 3 hours and 40 minutes that
8 he questioned you changed the opinions that you had
9 at the IARC meeting about glyphosate and non-Hodgkin
10 lymphoma?

11 MR. LASKER: Objection to form, beyond
12 the scope.

13 BY MR. MILLER:

14 Q You can answer.

15 A No.

16 MR. MILLER: I didn't even use an hour.
17 Thank you for your time.

18 MR. LASKER: I have like three questions,
19 but I will ask them from here. We don't have to go
20 off.

21 MR. MILLER: Sure. Sure. If the doctor
22 is okay with it, I'm okay with it.

23 THE WITNESS: That's fine.

24 RE CROSS-EXAMINATION

25 BY MR. LASKER:

1 Q Dr. Blair, I just want to clarify
2 something. I believe you said in response to one of
3 the questions from Mr. Miller that you don't look at
4 nonsignificant data. Is that what you said?

5 A Well, if I did, it's wrong.

6 Q Okay. Clearly, you do look at
7 nonsignificant data in evaluating the scientific
8 evidence, correct?

9 A Absolutely.

10 Q And epidemiological studies that do not
11 find a significant association are important studies
12 to consider in evaluating whether or not a substance
13 can cause or is associated with an illness, correct?

14 A Absolutely. They're -- all data are
15 useful to some extent.

16 Q And you were shown -- strike that.

17 Mr. Miller asked you about the
18 case-control studies and whether or not they found a
19 positive association. And just so the record is
20 clear, the North American Pooled Project analysis
21 that we've discussed a fair amount today is a pooling
22 of case-control studies, correct?

23 A Correct.

24 Q In fact, it's a pooling of all the
25 case-control studies in North America, correct?

1 A I think so.

2 Q And as we discussed in our
3 presentation -- in our questions --

4 A Of non-Hodgkin lymphoma.

5 Q Exactly.

6 As we discussed in our questions and your
7 answers earlier, when the pooled data is looked at
8 for all the case-control studies in North America for
9 non-Hodgkin lymphoma and that data is controlled for
10 exposures to other pesticides, there is no
11 statistically significant positive association
12 between glyphosate and non-Hodgkin lymphoma, correct?

13 A Well, it depends on what you actually
14 look at. Overall, yes. Now, whether you look at
15 categories, whether you look at subgroups, it's not
16 that simplistic.

17 Q The yes/no, ever exposed versus exposed
18 analysis that was used in the meta-analyses, for
19 example, that you relied upon that I prepared show
20 that for all the case-control data in North America,
21 when it's controlled for exposures to other
22 pesticides, there is no statistically significant
23 positive association between glyphosate and
24 non-Hodgkin lymphoma, correct?

25 A I think that's right for ever/never

1 exposure.

2 Q And Mr. Miller on redirect showed you
3 some presentation from the North American Pooled
4 Project, and the data that he showed you -- and let
5 me absolutely just go to this. This was plaintiffs'
6 exhibit -- or Exhibit 16, I'm sorry, and he went
7 through and showed certain data on -- he pointed out
8 certain numbers that were statistically significant
9 among the various evaluations that were presented in
10 this -- I'm sorry -- June 10, 2016 presentation. Do
11 you recall that?

12 A Yes.

13 Q And those data points that he was
14 pointing to you was of the analysis that was not
15 controlled for exposures to other pesticides,
16 correct?

17 A If you say so. I don't remember.

18 Q Okay. So you don't know -- when you were
19 looking at it, you didn't know if that data was
20 controlled or not controlled. You were just reading
21 what the numbers were on the page.

22 A Absolutely.

23 MR. LASKER: I have no further questions.

24 MR. MILLER: Just --

25 MR. LASKER: Oh, that's the document.

1 MR. MILLER: Just one.

2 REDIRECT EXAMINATION

3 BY MR. MILLER:

4 Q So a person who ever used Roundup for one
5 time would be in the ever exposed group.

6 THE WITNESS: Yes.

7 MR. MILLER: Okay. Thank you for your
8 time.

9 MR. LASKER: No further questions. Thank
10 you, Dr. Blair.

11 MR. GREENE: Before we stop. Doctor, you
12 have the right to read your deposition, and even
13 though I know that the reporter does a very good job
14 as far as taking down everything that was said and
15 all the questions asked, knowing how you are with
16 respect to accuracy, I would suggest in this case you
17 may want to read.

18 THE WITNESS: I think I would like that.

19 MR. MILLER: Yeah, we'll send you a copy.
20 We'll send it to your counsel and --

21 MR. LASKER: The court reporter can send
22 it to him.

23 MR. MILLER: There is a certain amount of
24 time involved.

25 THE WITNESS: Sure.

1 MR. MILLER: Sure, absolutely, we'll --

2 THE WITNESS: I have one other request.

3 Can I have a card from everybody in this room?

4 MR. MILLER: Sure. Absolutely.

5 THE VIDEOGRAPHER: The time is 3:58 p.m.,

6 March 20th, 2017. Going off the record, concluding

7 the videotaped deposition.

8 (Whereupon, at 3:58 p.m. the

9 deposition of AARON EARL BLAIR,

10 Ph.D. was concluded.)

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ACKNOWLEDGMENT OF DEPONENT

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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

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propounded, except for the corrections or

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changes in form or substance, if any,

11

noted in the attached Errata Sheet.

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AARON EARL BLAIR, PH.D.

DATE

16

17

18

Subscribed and sworn

to before me this

19

_____ day of _____, 20____.

20

My commission expires:_____

21

22

Notary Public

23

24

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1 CERTIFICATE OF NOTARY PUBLIC

2

3 I, LESLIE ANNE TODD, the officer before whom the
4 foregoing deposition was taken, do hereby certify
5 that the witness whose testimony appears in the
6 foregoing deposition was duly sworn by me in
7 stenotype and thereafter reduced to typewriting under
8 my direction; that said deposition is a true record of
9 the testimony given by said witness; that I am neither
10 counsel for, related to, nor employed by and the
11 parties to the action in which this deposition was
12 taken; and, further, that I am not a relative or
13 employee of any counsel or attorney employed by the
14 parties hereto, nor financially or otherwise
15 interested in the outcome of this action.

16

17 LESLIE ANNE TODD

18 Notary Public in and for the

19 District of Columbia

20 My commission expires:

21 November 14, 2017

22

23

24

25