Exhibit 2

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

----------X

IN RE: ROUNDUP PRODUCTS LIABILITY LITIGATION

MDL No. 2741

Case No. 16-md-02741-VC

----------x

This document relates to:

ALL ACTIONS

----------x

DEPOSITION OF CHRISTOPHER JUDE PORTIER, Ph.D.

New York, New York

September 5, 2017

Reported by: MARY F. BOWMAN, RPR, CRR

Job No: 128474

September 5, 2017
9:04 a.m.

Deposition of CHRISTOPHER JUDE PORTIER, Ph.D., held at the offices of Weitz & Luxenberg, 700 Broadway, New York, New York, before Mary F. Bowman, a Registered Professional Reporter, Certified Realtime Reporter, and Notary Public of the State of New Jersey.

APPEARANCES:

WEITZ & LUXENBERG
Attorneys for the Plaintiffs and the witness
700 Broadway
New York, NY 10003
BY: ROBIN GREENWALD, ESQ.
PEARL ROBERTSON, ESQ.
MAJA LUKIC, ESQ.
-and-
LUNDY LUNDY SOLEAU & SOUTH
Attorneys for Plaintiffs
501 Broad Street
Lake Charles, LA 70801
BY: HUNTER LUNDY, ESQ.

APPEARANCES:

HOLLINGSWORTH
Attorneys for Defendant, Monsanto
1350 I Street Northwest
Washington, DC 20005
BY: ERIC LASKER, ESQ.
JOHN KALAS, ESQ.

Also Present:
Robyn D. Buck, Esq., Monsanto
Michael Baum, Esq. (By telephone)
Pedram Esfandiary, Esq. (By telephone)
Matthew Smith, Videographer

INDEX:

EXHIBIT INDEX:

EXHIBIT INDEX:

EXHIBIT INDEX:

EXHIBIT INDEX:

THE VIDEOGRAPHER: This begins media labeled No. 1 of the video-recorded deposition of Dr. Christopher Portier in the matter of In re: RoundUp Products Liability Litigation, for the United States District Court, Northern District of California.

This deposition is being held at 700 Broadway in New York, New York on September 5, 2017, at approximately 9:04 a.m.

My name is Matthew Smith for TSG Reporting, Incorporated. I'm the legal video specialist.

The court reporter is Mary Bowman in association with TSG Reporting.

Will counsel please introduce yourself for the record.

(Whereupon counsel placed their appearances on the audio record. All attorney appearances will be on the final transcript).

THE VIDEOGRAPHER: Thank you. Will the court reporter please

swear in the witness.

CHRISTOPHER PORTIER,

called as a witness by the parties, having been duly sworn, testified as follows:

EXAMINATION BY

MR. LASKER:

Q. Good morning, Dr. Portier.

Dr. Portier, you served in May of 2005 as the chair of the IARC Science Advisory Board that recommended amendments to the preamble of the IARC monograph series, correct?

A. I'm not sure of the date. But the last time they did the preamble, I served as the chair. Actually, I was cochair.

Q. And the preamble is the document that sets forth the methodology that IARC working groups are required to follow in reaching their carcinogenicity classifications, correct?

A. That is correct.

Q. The group that you chaired recommended a number of revisions to the

monograph, correct?

MS. GREENWALD: Objection, form.

A. The group that IARC brought in, advisors, recommended a few changes to the preamble.

Q. For example, the science advisory board that you chaired recommended that IARC place greater weight on mechanistic data in reaching its cancer evaluations, correct?

A. The advisory group suggested that the mechanism data that was now becoming available was substantially different than what it was when the first preamble was written and they -- that the preamble needed to be revised to take into account modern mechanistic understanding of cancer.

Q. One of the things, for example, that your group recommended was that an agent might be classified as possibly carcinogenic to humans based solely on strong mechanistic data, correct?

MS. GREENWALD: Objection, form.

A. I don't know. I'd have to see the document to be certain that's the case,

and I'd have to see the previous document to see that it wasn't in the previous preamble.

MR. LASKER: Let me -- actually, let me mark both of these.

So we will mark as Exhibit 15-1 the report of the Science Advisory Group from May of 2005.

(Exhibit 15-1, document entitled, "IARC Monographs on Evaluation of Carcinogenic Risks to Humans," marked for identification, as of this date.)

MR. LASKER: And then we will mark as 15-2 a document that is labeled "Discussion of Changes in the Draft Preamble," which was prepared the same time -- or following the Science Advisory Board meeting.

(Exhibit 15-2, document entitled, "Discussion of Changes to Draft Preamble," marked for identification, as of this date.)

Q. Dr. Portier, just to clarify the record, Exhibit 15-1 is the report that your advisory group prepared for IARC,

correct?
MS. GREENWALD: Objection, form.
A. It does look like the report that we prepared for IARC.
Q. And on the second page of the report, in the listing of the participants, you are identified as the chair of this advisory group, correct?
A. That is correct. The cochair got ill, had to leave on the first date. That's why I am listed as the only chair and he is not listed.
Q. If we look at -- and the question was about the mechanistic data and some of the recommendations of your committee.
If you could look at Exhibit 15-2, and particularly at page 7 -- I'm sorry.
15-2 would be the changes, Dr. Portier?
You're looking at 15-1?
A. Yes. Sorry.
Q. 15-2 is discussing some of the changes following your advisory group recommendations.

And on page 7, towards the bottom of the page --
A. Yes.
Q. -- there is a paragraph that starts, "The expert workshop recommended in the consensus report."
Do you see that paragraph?
A. Yes.
Q. And then there is the sentence:
"Accordingly, the Advisory Group recommended that an agent can be characterized as possibly carcinogenic to humans based solely on strong mechanistic data."
Correct?
A. That's what it says.
Q. And that was one of the recommendations of your advisory group?
A. That's recommendation 12(d).
MS. GREENWALD: Objection, form.
A. So the advisory group cites the paper by McGregor, et al., which had looked at the presence or the ability to have data on animal carcinogenicity studies for an IARC monograph review, and McGregor

concluded that animal cancer bioassays were being used less and less in looking at the carcinogenicity of compounds and more and more other types of mechanistic studies were being used to supplant the need for a two-year chronic animal carcinogenicity study.
So that was the basis from which the discussion went on to look at the rest of it.
Q. Dr. Portier, my question is a simple one.
A. I know. I'm trying to find it in here.
"Changing the preamble to reflect this possibility, also taking into account" ...
Yes, that's exactly what the group said.
Q. So the Science Advisory Board, the chair recommended that the preamble be amended to mechanistic data alone could support a finding of possible carcinogenicity, correct?
MS. GREENWALD: Objection, form.

A. There is more verbiage to it than that.
Q. But in effect, that was the recommendation, correct?
MS. GREENWALD: Objection, form.
A. No, there is more verbiage to it than that. The verbiage deals with extremely strong and strongest from other relevant data could potentially be classified by IARC in Group 2B.
Q. OK. I stand corrected.
A. And to be clear, it says, "Similarly, an agent for which there is less than sufficient evidence from animal studies."
That means you could have limited evidence in animal studies, including inadequate evidence, and strong evidence from other relevant data could potentially be classified in Group 2B.
So it's important that that is linked with the strong data. You can't do it just because you have mechanistic data.
Q. Understood.
Your advisory group also

recommended that the preamble be amended, and if you want to look at pages 6 and 7 of the document, Exhibit 15-2, Discussion of Changes in Draft Preamble, your Science Advisory Board also recommended that the preamble be amended to allow for the finding of sufficient evidence of carcinogenicity in animals based on the results in a single animal study, correct?

MS. GREENWALD: Objection, form.

Q. And that is on the bottom of page 6, top of page 7.

MS. GREENWALD: Objection, form.

A. That is correct.

The previous preamble required that you have positive results from studies in two separate labs. The new preamble states that results in both sexes of a single species in a GLP study can provide sufficient evidence of carcinogenistic.

So you still have to have two positive findings of the carcinogenicity but they don't have to come from two separate laboratories.

Q. Your Science Advisory Board also

endorsed -- page 3 on the changes, Exhibit 15 -- 15-2 -- also endorsed the use of metanalyses to evaluate the human epidemiological data, correct?

A. Can you tell me where it is on here?

Q. Page 3, numeral 8 at the bottom.

A. Oh, it's right there.

Yes.

Q. And if you look at -- let me go back to 15-1, which is a report.

Page 4 of 5 discusses the fact that your group also reaffirmed the preamble's guidance that IARC working groups could only consider scientific studies in the published literature or publicly available reports from national and international agencies, correct?

MS. GREENWALD: Objection, form.

A. Do you know which issue this is?

Q. Page 4 and 5 in Exhibit 15-1 at the bottom, it says, "Data from monographs"?

A. Yes.

Q. And again, the question is that

your Science Advisory Board also reaffirmed the preamble's guidelines that IARC working groups could only consider scientific studies in the published literature or publicly available reports from national or international agencies, correct?

MS. GREENWALD: Objection, form.

A. That is correct.

Q. In December of --

A. But I believe that was in the previous preamble as well. We are simply agreeing with the previous preamble.

Q. Correct. That was the question.

A. Actually, the only change we changed from the previous preamble, what we were changing there was we could use government and international agency documents provided they were publicly available.

That was not in the previous preamble.

Q. Got it.

In December of 2005, you then served on the advisory group that reviewed and largely approved the recommendations

that had been made by your Science Advisory Board, correct?

MS. GREENWALD: Objection, form.

Q. And I can show you the documents if that would make it easier for your call.

A. I certainly don't remember that. Please.

MR. LASKER: So this will be Exhibit 15-3.

(Exhibit 15-3, document entitled, "IARC Monographs on Evaluation of Carcinogenic Risks to Human, Internal Report 6/001," marked for identification, as of this date.)

Q. You can turn to the second page -- third page, you will see your name listed as part of the advisory group.

A. Yes, but so were many of the others who helped were on the first advisory group.

Q. Just so we have a clear record, in December of 2005, you also served on the advisory group that reviewed and largely approved the recommendations made by your earlier Science Advisory Board, correct?

MS. GREENWALD: Objection, form.
A. There were several pieces to that question. Could you repeat it for me, please.
Q. In December of 2005, you served on the advisory group that reviewed and then approved the amendments to the preamble, correct?
A. In 2005, I served on two advisory groups. One made recommendations. The second one reviewed the new preamble to make sure that it actually matched the recommendations.
Q. From 2013 to 2014, you served as a visiting scientist at IARC, correct?
A. From, I believe, October 2013 'til April, March 2014, yes.
Q. What work were you doing for IARC during this period?
A. What work was I doing for IARC during this period?
I did several things. There was some joint collaborations on looking at genotoxicity due to a variety of chemicals using proteomics, metabolomics and

genomics.
I gave a seminar on genomics and genomic issues and some network modeling that allows you to pull up our genomic data and gave talks on that.
We worked on a manuscript that was recently published that looked at the ten characteristics of carcinogenesis, so I worked on that.
We were working on a review of the model -- of the Monographs 100. The Monographs 100 reviewed all of the known human carcinogens, and we had a couple of questions we wanted to ask from the known human carcinogens, such as how often do cancer seen in the animal match the cancer seen in humans? And other issues along those lines. How many times do rats match mice and how often is a mechanism tied to a specific tumor in humans rather than any tumor in humans?
So we were analyzing that data. And then we were using that at the same time to put together some guidance -- some points for guidance for mechanistic work

groups.
On the IARC monographs, when they came in to look at mechanistic data, I didn't end up putting those points together. That was done by IARC staff long after I left.
Q. Were you paid for your work as a visiting scientist at IARC?
A. IARC's visiting scientists are reimbursed for their expenses while they're in Lyon during that period of time. And I was reimbursed for those expenses; however, they were reimbursement of expenses. It was not salary.
Q. In April of 2014, you then served as the chair of the IARC advisory committee that designated glyphosate as a medium priority for review for carcinogenicity, correct?
MS. GREENWALD: Objection to form.
A. In -- was it April of 2014 -- if that's the correct date, I can't be absolutely certain -- in April of 2014, I chaired the IARC working group that looked

at approximately 200 chemicals that were nominated to the program by outside individuals to see what priority should be placed on evaluating those 200 compounds in the next five years for the IARC.
Q. And that group, among other decisions it made, designated glyphosate as a medium priority for review, correct?
A. Yes, that group recommended glyphosate for medium priority review.
Q. Do you recall who asked you to serve as the chair of that committee?
A. I don't remember which member of the staff was running that committee but probably Kurt Straif, the head of the program.
Q. At the time you served as the chair of this 2014 advisory committee, you had been serving as well for over a year as a senior scientist for the Environmental Defense Fund, correct?
A. I was working one day per week as a senior contributing scientist with the Environmental Defense Fund, yes.
Q. The Environmental Defense Fund

was founded in the late 1960s in connection with concerns about a pesticide called DDT, correct?

MS. GREENWALD: Objection, form.

A. I've never spent time looking at the history of the Environmental Defense Fund. So I really have no idea.

I've heard the same story as you.

Q. So your understanding is the Environmental Defense Fund got started around the issue of the pesticide DDT?

MS. GREENWALD: Objection, form.

A. Someone has told me that the Environmental Defense Fund began from a group of scientists on Long Island in New York who were trying to get DDT, a terrible environmental toxin, out of the -- out of their water, out of their air.

Q. And the Environmental Defense Fund over the ensuing 50 years continued to be active in opposing various pesticides, correct?

MS. GREENWALD: Objection, form.

A. I have no knowledge of that.

Q. During the same time that you

were working with IARC in reviewing glyphosate and other pesticides, you were also working with the Environmental Defense Fund in promoting a wristband project which was seeking to measure human exposures to pesticides and other chemicals, correct?

MS. GREENWALD: Objection, form.

A. I can't -- I do not know the answer to that question. The time frame is the issue here.

Q. So you do recall that you worked with the Environmental Defense Fund on the wristband project, correct?

A. But I can't be certain such work was done while I was also at IARC.

Q. I understand. I want to see if I get a clear answer to this: You do recall working with the Environmental Defense Fund on their wristband project, correct?

A. I do recall advising them on their wristband project, yes.

Q. And the wristband project was measuring human exposures to pesticides and other chemicals, correct?

A. It was measuring anything in the

person's environment that adhered to the latex -- the special latex that's on the wristband, and then that was in turn evaluated by GC mass spec to find out how much of each of these the people had encountered.

Q. Again, the wristband project that the Environmental Defense Fund conducted and you advised on was measuring human exposures to pesticides and other chemicals, correct?

MS. GREENWALD: Objection, asked and answered.

A. I don't really know if they had pesticides on the list of chemicals they measured. I can remember some of them but I can't remember exactly whether there were pesticides on there. But certainly, there were chemicals on that list.

(Exhibit 15-4, e-mail chain, dated October 21, 2015, marked for identification, as of this date.)

Q. Dr. Portier, I have provided you with a copy of an e-mail exchange. It starts off as an e-mail exchange between

you and Linda Birnbaum on October 21, 2015. Correct?

A. October 21, 2015, to Linda Birnbaum at -- at NIEHS, yes.

Q. For the record, who is Linda Birnbaum?

A. Linda Birnbaum is the director of the National Institute of Environmental Health Sciences and the director of the National Toxicology Program, former president of the Society of Toxicology, and a lot of other big, important titles.

Q. In this e-mail, you discuss two issues with Dr. Birnbaum: One dealing with work you're doing for the Environmental Defense Fund, and the second being work that you're doing in connection with glyphosate, correct?

MS. GREENWALD: Objection, form.

A. Could you ask the question again, please.

Q. Sure.

In your e-mail of October 21, 2015, you are discussing two issues: One is the work that you are doing for the

Environmental Defense Fund, and the second is the work that you have been doing with respect to glyphosate and a European regulatory decision about cancer, correct?

MS. GREENWALD: Objection, form.

A. Why is there a blacked-out section in this letter? I don't understand that.

Q. This was a document that was produced by the government and they blacked it out.

A. OK.

Anyway, the first paragraph deals with the work I'm doing in Europe on reregistration of glyphosate, which I find fascinating, and the second part deals with the work on wristbands with EDF.

MR. LASKER: And then if we can mark as Exhibit 15-5.

(Exhibit 15-5, report entitled, "Chem Daily Text Project: New Technology Sheds Light on Chemicals in Our Environment," marked for identification, as of this date.)

Q. And this Exhibit 15-5 is the

Environmental Defense Fund's report on its wristband project, correct?

MS. GREENWALD: Objection, form.

A. Yes, I believe this is EDF's report on their wristband testing project.

Q. As reflected in this report, the wristband project that you consulted on for Environmental Defense Fund reported results for detections of pesticides as -- if you look at the second page, 12 different pesticides as part of its analysis and the findings of pesticides in 93 percent of the participants, correct?

MS. GREENWALD: Objection, form.

A. This does then clarify that I couldn't remember if there were pesticides, but yes, obviously, there were pesticides in here. And that the pesticides were seen in -- I have to look and find that percentage. I'm sorry.

Q. The first page will show you the percentage in the blocked-out, gray area in the gray box.

A. 93 percent detected one or more pesticides, that is correct.

Q. Your affiliation with the Environmental Defense Fund was not disclosed in that April 2014 IARC advisory committee report, correct?

MS. GREENWALD: Objection, form.

A. Again, could you repeat the question.

Q. Sure.

April 2014, you served as the chair of the IARC advisory committee that designated glyphosate as a medium priority?

A. Correct.

Q. Your affiliation with the Environmental Defense Fund was not disclosed in that IARC advisory committee report, correct?

MS. GREENWALD: Objection, form.

A. The IARC advisory committee report did not list -- well, I'd have to look now. I'd have to see a copy of the report. I'm sorry.

Q. Do you recall whether IARC knew -- at the time that you served as chair of their advisory committee, do you know if they knew of your work with the

Environmental Defense Fund?

A. Yes.

Q. Shortly after your advisory group designated glyphosate as a medium priority, IARC announced it would be convening a working group to evaluate a number of pesticides for -- to determine whether they could be classified as carcinogens, correct?

A. I don't know.

MR. LASKER: I'm going to mark as -- we will make this the next two in line, Exhibit 15-6 and 15-7, two notices from IARC announcing upcoming meetings, particularly meeting 112.

And for the record, I will represent that these documents were pulled off of IARC's website using something called a Wayback Machine, which allows you to actually date when it appeared on the IARC website.

So the first document is dated July 16, 2014, and the second is October 7, 2014.

(Exhibit 15-6, IARC announcement,

dated July 16, 2014, marked for identification, as of this date.)

(Exhibit 15-7, IARC announcement, dated October 7, 2014, marked for identification, as of this date.)

MS. GREENWALD: Which is which?

MR. LASKER: July 16 is the 6, and October 7 is the 7. So chronological order.

Q. So just so we have the timing correct, in April of 2014, your advisory committee designated glyphosate as medium priority, correct?

MS. GREENWALD: Objection, form.

A. In --

Q. April of 2014.

A. -- '14, the advisory group recommended several compounds for high priority and some for medium priority, of which glyphosate is one of the products.

Q. And in July of 2014, IARC announced meeting 112, which was going to be focused on organophosphate insecticides, correct?

MS. GREENWALD: Objection, form.

A. It appears from your Wayback Machine review that that is the date which IARC put up this notice that says, "Some organophosphate insecticides, not specifically glyphosate."

Q. And then October 7, 2014, that notice was amended and for meeting 112, they now also include glyphosate to be reviewed, correct?

MS. GREENWALD: Objection, form.

A. It appears that, from your Wayback Machine, October 7, that that is correct, that in October, IARC appended herbicides to their organophosphate insecticides review.

It is not uncommon for IARC to group chemicals when they do reviews if the chemicals have similar behavior or the datasets for the chemicals come from similar sources.

So because many people -- many of the epidemiology studies were pesticides and herbicides combined, it makes good sense to do it here because you're reviewing the same epidemiological studies.

Q. But just to be clear, glyphosate is not an organophosphate insecticide, correct?

A. That is correct.

Q. The working group 112, you ultimately were asked to serve as an invited specialist to this committee, correct?

A. I was asked to serve as an invited specialist to this committee. I was asked -- yes.

Q. Let me ask: Did you ask to serve on the committee or did somebody ask you to serve on the committee?

A. I was asked in the normal way that IARC asks people to serve on these committees, by an e-mail sent to me -- first, they call you and say, "Are you interested?" And then they send you an e-mail.

Q. Do you recall who asked you to serve as an invited specialist for working group 112?

A. No. I really don't recall. It could have been any member of the staff.

Q. An invited specialist is someone whom IARC believes has critical knowledge and experience on a matter but has real or apparent conflicts of interest, correct?

MS. GREENWALD: Objection, form.

A. The definition of an "invited specialist" is part of the preamble. And if what you have just said is a quote from the preamble, then that would be correct.

Q. Well, why don't we take a look at the preamble then.

A. I don't have it yet.

Q. You are about to get it.

A. I thought you had given it to me.

(Exhibit 15-8, document entitled, "IARC Monographs on the Evaluation of Carcinogenic Risks to Humans Preamble, marked for identification, as of this date.)

Q. If you could look at page 4 of the preamble, line 32 to 33 -- they are nice enough to have line numbers for us.

A. That is the definition.

Q. So invited specialist is someone who IARC believes has critical knowledge

and expertise on the matter but who has a real or apparent conflict of interest, correct?

A. That is what it says, that is correct.

Q. Your conflict of interest arose because of your role with the Environmental Defense Fund, correct?

MS. GREENWALD: Objection, form.

A. To be clear, it's a perceived conflict of interest, not necessarily a conflict of interest. And they're very clear here on the language that it have -- they talk about apparent or real.

In this case, it is a perception that this is a conflict of interest. But yes, that was the perceived conflict of interest that they were concerned about.

Q. And you had that same conflict of interest when you served as the chair of the advisory committee that prioritized glyphosate for evaluation, correct?

MS. GREENWALD: Objection, form.

A. The correct answer to the question is no.

And here is why that's the correct answer to the question as you asked it: The 2014 meeting was an advisory group, not a monograph meeting. So it doesn't work under the same rules as the preamble. So that's case No. 1.

But IARC does give you a form that you have to fill out for potential conflicts of interest for every meeting.

For that meeting, because it was an advisory group, and because I was only doing work with the Environmental Defense Fund on issues related to air pollution and climate change and hydraulic fracking, in my opinion, I did not think it was a conflict of interest, and therefore, I did not list it.

Q. And do you recall, sitting here today, whether during that period in April of 2014, you had begun consulting with the Environmental Defense Fund on the wristband project?

A. I do not recall.

Q. Aside from your role on the advisory committee that prioritized

glyphosate for review, had you reviewed the science on glyphosate prior to being appointed to working group 112?

MS. GREENWALD: Objection to form.

A. Prior to being appointed to working group 112, I had not looked at any of the scientific evidence on the carcinogenicity of glyphosate.

Q. Let me show you an e-mail that we received from one of the other working group members.

MR. LASKER: And we will mark this as 15-9.

(Exhibit 15-9, e-mail dated March 3, 2015, marked for identification, as of this date.)

A. What is this?

Q. This is an e-mail that is dated March 3, 2015, which was the beginning of the IARC 112 working group time period.

A. OK.

Q. The subject line is "E-mail Subgroup 4," which is the subgroup on mechanisms, correct?

A. That would usually -- yes, that would be it.

Q. And this is creating an e-mail tree of the members on this subcommittee, correct?

A. That appears to be the case, yes.

Q. And you were included as one of the individuals working on subgroup 4 at working group 112, correct?

A. That is correct.

Q. Were you assigned by IARC to work with the mechanism subgroup?

A. Yes, I was.

Q. Were you tasked with preparing any analyses before the actual physical meeting in Lyon?

A. No, I was not.

Q. We have a couple of other e-mails between the mechanistic subgroup members I would like to ask you about.

(Exhibit 15-10, e-mail dated March 4, 2015, marked for identification, as of this date.)

Q. This March 4, 2015 e-mail, again, to members of subgroup 4, and you're

included, correct, as a recipient of this e-mail?
A. Yes, I'm included, and yes, it's an e-mail to it appears to be subgroup 4 with a copy to Kate Guyton.
Q. This March 4, 2015 e-mail to you and the other mechanism folks attached an early draft of Sections 4.6 and a summary of 4.5 for each of the four chemicals being reviewed, including glyphosate, correct?
MS. GREENWALD: Objection, form.
A. It seems to say that Section 4.6 in summary of 4.5, two- or-three sentence summary, was attached.
Q. And Dr. Martin is providing you all with this summary to provide folks with something to include in their respective 4.6 sections, correct?
MS. GREENWALD: Objection, form.
A. I don't know.
Q. The last clause --
A. Oh, I see, yes, Section 4.6 is the summary of the Section 4 evaluation.
Q. And were you working on one of the 4.6 sections?

A. No, I don't write any of the sections in the IARC monograph.
MR. LASKER: We also have a March 6, 2015 e-mail. This will be Exhibit 15-11.
(Exhibit 15-11, e-mail dated March 6, 2015, marked for identification, as of this date.)
Q. And this is a -- this e-mail is from Kathryn Guyton, and she is with the IARC staff, correct?
A. Uh-huh. Yes.
Q. And there is an e-mail to you and other subgroup 4 working group folks again talking about the work that the mechanistic subgroup was doing during this period, correct?
MS. GREENWALD: Objection, form.
A. It's a complicated question.
Q. OK, I'm not sure it's complicated but I'll ask it again.
This e-mail between you and the other individuals working on the mechanism subgroup was part of the work that was done during that week on mechanisms at working

group 112, correct?
MS. GREENWALD: Objection, form.
A. This is an e-mail. It deals with the work of Section 4 during the IARC monograph.
Q. During the working group 112, did you spend all of your time when the meeting was not in plenary session with the mechanism subgroup?
A. No.
Q. What other subgroups did you -- well, let me ask this: Did you go from different subgroup to different subgroup during the meeting?
A. No. I spent a short period of time with the animal carcinogenicity subgroup.
Q. Do you recall when that was?
A. No, I do not recall.
Q. Did they ask for you to help them out or did you decide on your own to spend some time with them?
A. They asked for me to help them out.
Q. Do you recall what specifically

they asked you to help them with?
A. Yes, I do.
Q. What was that?
A. The topic dealt with the, I believe, kidney tumors in the Knezevich and -- I forget the name of the authors -- rat study, and the question had to deal with historical controls.
Q. So just to be clear, is this a Knezevich rat study or a Knezevich mouse study?
A. I guess Knezevich I'm hoping was a mouse study and it's -- the mouse study. Sorry.
There are so many studies, I get confused.
Q. Do you recall specifically what their question was with respect to historical controls?
A. The question was did this tumor appear to be significant because of the historical control population that had been identified, and then, also, where could they get code to do a trend test on that particular data.

Q. Did you provide them with the -- did you advise them as to where they could find code to conduct a trend test on the data?
A. I gave them some suggestions of where to look. I was unaware of any place where it could be found, if I recall -- if I recall correctly.
Q. Did you assist in calculating the -- the trend test that appears for that study in the IARC monograph?
MS. GREENWALD: Objection, form.
A. I'm not sure what you're asking me.
Q. The IARC --
A. The p-value was obtained from a program identified by one of the members in either that subgroup or the mechanism subgroup, and that person ran the code.
Q. Do you recall who that was?
A. I think it -- I'd have to see a list of the authors of the monograph and I could probably pull -- I'm terrible with names -- I could probably pull it from the list.

Q. Did you review the statistical analysis after it was conducted?
A. Yes, I did.
Q. While you were at the monograph meeting?
A. Yes, I did.
Q. And did you verify that that analysis was conducted correctly?
MS. GREENWALD: Objection, form.
A. I verified that the approximate p-value from the Armitage linear trend test that was run in that analysis appeared to be correct.
Q. Did you understand at the time that that was an approximate trend test?
MS. GREENWALD: Objection, form.
A. I did not know it either way.
Q. Did you attend any of the plenary suggestions that was conducted during that week for working group 112?
A. All of them.
Q. And about midway through the week, there was a -- there was a presentation before the plenary in which the subgroups provided their initial

assessment of the data.
Do you recall that?
MS. GREENWALD: Objection, form.
A. At every IARC monograph meeting about midweek there were presentations from each of the working groups as to where they are and where they think the decisions are going.
Q. Let me show you copies of some handwritten notes that we received from Dr. Matthew Ross from Mississippi State.
MR. LASKER: And we will mark this as next in line. It's 15-12.
(Exhibit 15-12, handwritten notes dated 3/6/15, marked for identification, as of this date.)
Q. Dr. Ross was a member of the mechanism subgroup with you, correct?
MS. GREENWALD: Objection, form.
A. Dr. Ross was a member of the mechanism subgroup.
Q. Now, on the last page of these notes, Dr. Ross has written some notes about what was being said about glyphosate at this meeting. And --

A. Where is this?
Q. This would be the last page, the bottom half of the page. Do you see group 1, group 2, group 3, group 4, with listings for glyphosate?
It's going to be the last page of the document.
A. Yes, I do see that.
Q. And there are notes for subgroup 1, which is for exposure data, correct?
A. Correct.
Q. And there's a notation here, "Detectable in water and food."
Do you recall that discussion?
MS. GREENWALD: Objection, form.
A. Not specifically. But it is normal.
Q. And then there is a note for subgroup 2 for human data, correct?
MS. GREENWALD: Objection, form.
A. There appears to be a note on glyphosate in human data under group 2.
Q. And Dr. Ross' notes indicate that subgroup 2 stated that glyphosate was

negative NHL, and then says, "Case control glyph" with an arrow "NHL," and then a notation, "AHS negative data," correct?

MS. GREENWALD: Objection, form.

A. That's exactly what it says.

Q. And "AHS" is referring to the Agricultural Health Study, correct?

MS. GREENWALD: Objection, form.

A. I can't presume that.

Q. Do you recall whether there was discussions at the Agricultural Health Study during this working group meeting?

A. Of course there were discussions of the Agricultural Health Study during this meeting.

Q. With respect to group 3 -- subgroup 3, that is the animal subgroup, correct?

A. That is correct. That's -- if this note pertains to that, yes.

Q. And Dr. Ross wrote down that the animal subgroup said that the animal carcinogenicity data for glyphosate was limited to inadequate, correct?

MS. GREENWALD: Objection, form.

A. It -- he has written a note that says, "Glyphosate - limited to inadequate."

Q. "Limited" and "inadequate" are both defined terms in the IARC preamble, correct?

A. For the animal data, yes.

Q. Do you recall a presentation during a plenary session in working group 112 where the animal subgroup was discussing the animal data for glyphosate as being limited to inadequate?

MS. GREENWALD: Objection, form.

A. I can't recall.

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

A. No. This is a preliminary -- if he is taking notes from the preliminary meeting, it's just a preliminary meeting. And so I have no clue as to -- I mean, it's typical to have these discussions in plenary midweek.

Q. And just so the record is clear, this would have been a presentation by the animal subgroup after the period of time that it had taken prior to the meeting to

conduct their analysis and then after the first few days of the subgroup meeting, correct?

MS. GREENWALD: Objection, form.

A. In a typical IARC monograph meeting, midway through the week, the animal group would have gone through each of the papers together, discussed problems with the paper, and were beginning to think about where they would go with the call, that is correct.

Q. Do you recall yourself voicing any objections to the animal group's preliminary assessment of the glyphosate data?

A. At this point?

I might have -- I wouldn't have voiced concern at their calling it "limited." But I might have voiced concern at their interpretation of one or two of the studies.

Q. Let me show you another e-mail we received from Dr. Ross.

(Exhibit 15-13, e-mail dated March 11, 2015, marked for

identification, as of this date.)

Q. Dr. Portier, Exhibit 15-13 is an e-mail from Ivan Rusyn initially to -- it doesn't have a "To" line here but it is discussing convening group 4 downstairs in the first coffee break on March 9, 2015.

Do you recall attending a meeting of group 4 -- March 9, just to refresh your recollection, will be the second-to-last day of the IARC working group meeting.

Do you recall attending a coffee break meeting of the mechanism subgroup on March 9, 2015?

MS. GREENWALD: Objection, form.

A. There is no way I could recall a small submeeting at an IARC monograph meeting and whether I was in attendance or not.

Q. Do you recall discussions with respect to whether or not glyphosate should be classified as 2B or 2A under the IARC classification scheme?

A. Could you ask the question again? I want to be clear I got that question right.

Q. Do you recall discussions during the working group meeting with members of group 4 as to whether or not glyphosate should be classified as 2B, possible carcinogen, or 2A, probable carcinogen?

A. I was specifically not allowed to do that.

So the answer to that question is: As an invited expert, I would have not encouraged in one way or the other on any of the -- any of the final listings, but I would have talked about the science and the interpretation of that science.

Q. Would you have talked about whether or not the -- in your opinion, the mechanistic data was strong so as to allow -- and I recognize you wouldn't have continued in the next step -- but so as to allow under the preamble glyphosate to be moved from 2B to 2A?

MS. GREENWALD: Objection to form.

A. I specifically remember the discussions that group had relative to the strength of the evidence for mechanisms for

glyphosate, and I clearly remember keeping my mouth shut. Because I was an invited specialist and that was my job.

Q. Do you recall that as of March 9 -- so this would be three days after the notes we looked at from Dr. Ross -- the animal subgroup had -- was classifying the data -- the animal data as for glyphosate as limited?

MS. GREENWALD: Objection, form.

A. So IARC monographs are owned completely by the entire working group. And so the animal carcinogenicity working group would make a recommendation. However, the entire working group has to agree or conclude or concur with that recommendation. Otherwise, it can change.

As you can see in this case, Ivan Rusyn had concerns about limited evidence in animals, but yes, up to March 9, it appears that the animal working group was going to recommend limited.

Q. Just so I understand the process, the animal subgroup recommended that the animal data was limited, but the full

working group ultimately decided that the animal data was sufficient for glyphosate, is that correct?

MS. GREENWALD: Objection, form.

A. I can't be certain that's the way it actually worked.

Q. You were at the meeting, do you recall that's how it worked?

A. I don't recall. I've seen cases where the entire working group has changed the recommendation in the plenary session before. I can't remember.

Q. Following the working group meeting, the working group's conclusions were published in an article in The Lancet, correct?

A. Very brief summary, abstract more than anything else, yes.

Q. Does IARC have an arrangement with The Lancet to publish abstracts of its meetings?

A. Yes, they do.

Q. This happens shortly after the meetings are concluded, correct?

A. That is correct.

Q. Just so I understand the process, this is not a peer-reviewed article that appears in The Lancet correct?

MS. GREENWALD: Objection, form.

A. I actually do not understand the way in which Lancet reviews this article. So I can't answer the question.

MR. LASKER: Let me mark as next in line 15-14.

(Exhibit 15-14, e-mail dated March 13, 2015, marked for identification, as of this date.)

Q. Here is an e-mail March 13, 2015 to you and other members of the working group from Kathryn Guyton asking for comments on the draft article that was to appear in Lancet about the working group 112 meeting, correct?

MS. GREENWALD: Objection, form.

A. This is an e-mail from Kathryn Guyton sending a draft of the document that will be going into Lancet Oncology and asking for these members of the working group to review it for clarity.

Q. Do you recall if you reviewed the

draft and provided any comments?
A. I'm pretty certain I would have read it. I don't recall if I provided comments.
Q. You agree that your involvement in the IARC working group on glyphosate had the appearance of being a conflict of interest, correct?
MS. GREENWALD: Objection, form. That's not his testimony.
A. The fact is that IARC felt it was a potential or a perceived conflict of interest. That is the fact. My opinion doesn't matter.
Q. Well, my question though is about your opinion.
You do agree that your involvement in the IARC working group on glyphosate has the appearance of being a conflict of interest, correct?
MS. GREENWALD: Objection.
A. I'm having a tough time with the question. I've never really thought about it.
Do I think I had a conflict of

interest? No. But would others potentially see it as a conflict of interest? Of course, yes.
Q. So you do --
A. Some others, not all others. Some others.
Q. So just to be clear, you do agree that your participation in working group 112 on glyphosate has the appearance of being a conflict of interest?
MS. GREENWALD: Objection, form.
A. As I said before, I agree with the statement that some people would perceive it as a conflict of interest.
Q. A few months after IARC reached its causation determination, the issue of whether glyphosate can cause cancer was considered by European regulators, correct?
A. I am sorry, what was the first part of that sentence?
Q. Some months after IARC reached its causation determination, the issue of whether glyphosate can cause cancer was considered by European regulators, correct?
A. Specifically considered by the

European Food Safety Authority.
Q. You registered your company as a lobbyist in Europe so you could lobby against glyphosate reregistration, didn't you?
MS. GREENWALD: Objection, form.
A. No, I did not.
Q. Let's take this in steps.
A. Sure.
Q. You did lobby -- you did register your company as a lobbyist in Europe, correct?
A. No, I did not. At least as far as they told me I did not.
Q. Who is "they"?
A. Go ahead and put it in and I'll explain.
MR. LASKER: This is Exhibit 15-15.
(Exhibit 15-15, printout from LobbyFacts, marked for identification, as of this date.)
Q. Dr. Portier, this is a document put out by LobbyFacts EU, which notes that your company, C. Portier Consultations, was

at least thought to be registered, if not registered, as a lobbyist in Europe in connection with the reregistration decision for glyphosate, correct?
MS. GREENWALD: Objection, form.
A. I -- there are so many parts to that, I have no idea.
Would you like me to tell you what this is?
Q. Let me first go through the document.
On the second page of the document, it talks about a C. Portier Consultations registration on EU transparency register, and the issue was registration of the pesticide glyphosate, correct?
A. It says something like that.
[redacted]
Q. And at least according to this source, your company was registered in Europe to consult on a reregistration of

the pesticide glyphosate, correct?
MS. GREENWALD: Objection, form.
A. That is not my understanding.
Q. What is your understanding?
A. We were asked by the commissioner of health -- four of the scientists who participated in a -- who were coauthors of a letter sent to the commissioner concerning the quality of the review done on glyphosate by the European Food Safety Authority.
The commissioners' staff told us that we could not -- we would have to register to come in and talk to the commissioner because everybody has to register. They gave us a particular space to fill it in on the EC website.
I went to that spot, I filled this in as they asked me to fill it in, since I had to come up with a title for the company, or -- because the thing wouldn't take nothing in that spot, I called it C. Portier Consultations, for lack of a better term.
The day after I entered this, the

staffer called back and said, I have this all wrong. I'm sorry. You can come see the commissioner because all you want to talk about is scientific issues. You're not lobbying on behalf of a company. You're all academics. You don't have to do this, but I had already done it.
Q. Just so I understand, you were told by the staff European -- a staffer on the European Commission --
A. Yes.
Q. -- that you didn't have to register because you were not presenting your views on behalf of any private entity, is that correct?
MS. GREENWALD: Objection, form.
A. They -- they told us we were not lobbyists and this list was for lobbyists, and therefore, we did not need to register. That was the crux of the conversation.
Q. The reason you didn't have to register is because you were not providing information -- or you were not talking to the European regulators on behalf of any private -- other private entity, correct?

MS. GREENWALD: Objection, form.
A. I don't exactly know how to answer that question because I don't know what their rules specifically are. All I did was respond to what the staffer told me I had to do.
Q. In any event, after this discussion, you then did appear and speak with European Parliament, European regulators, about glyphosate, correct?
A. That's too complicated a question for me to answer.
I met with very specific people. The head of the -- the health commissioner for European Commission and several of his staff members. I think one of them was a regulator but I can't be absolutely certain.
There was interaction on my part with EU parliamentary members and there was interaction on my part with other members of parliament and conferences at various other national authorities.
Q. On early November of 2015, you reached out to other members of the IARC

working group to help you in your discussions with the European regulators, correct?
MS. GREENWALD: Objection, form.
A. At some point before that letter went out, I asked other scientists to -- who were interested to join me in writing the letter.
MR. LASKER: Let's mark this as Exhibit 15-16.
(Exhibit 15-16, e-mail chain dated 11/9/2015, marked for identification, as of this date.)
Q. Exhibit 15-16 at the bottom of the first e-mail in the chain is an e-mail that you sent to a number of other scientists dated November 9, 2015 regarding the EFSA review of glyphosate, correct?
A. That appears to be what it is.
MS. GREENWALD: Eric, the Bates is cut off the bottom. Do you know what it is? It doesn't appear on this document.
MR. LASKER: I don't. We will get that for you. I don't have it.

MS. GREENWALD: Thank you.
Q. In this e-mail, you were telling these other scientists that the European Food Safety Agency was going to conclude that glyphosate has no carcinogenic potential, correct?
A. I believe I read that, yes.
Q. And you were telling these individuals that this created two problems in your view: That it might weaken the IARC monograph program, and suggest that the IARC working group did not adequately review all of the data, correct?
MS. GREENWALD: Objection, form.
A. No.
Q. You stated and quoted specifically then, that EFSA's determination that glyphosate had no carcinogenic potential created two problems: One that it weakens the strength of the IARC monograph program to stimulate change in how some of these agents are reviewed and addressed.
And the second is that it suggests we did not do our assessment

adequately and that had we seen all the data they saw, they would have gotten -- we would have gotten a different answer, correct?
MS. GREENWALD: Objection, form.
That wasn't what he testified.
A. No, it was not read exactly, but the point of my saying "no" before is you said I said it would weaken the IARC monograph program.
That's not what this says. It says it weakens the strength of the IARC monograph program to stimulate change. That's not weakening the program.
Q. And then the second concern that you had is that it would suggest that the work that we did -- and by "we," you are talking about working group 112, correct?
A. Yes, I guess so.
Q. That if we did not do our assessment adequately, and if we had seen all the data, we would have gotten a different answer, correct?
A. In fact, this suggestion was all over, from EFSA, from PF4, from others as

well.
Q. You state in your e-mail to these scientists, "I do not intend to let this happen." Correct?
A. I do not intend to let the strength of the IARC monograph program to stimulate change in how these agents are reviewed happen, and I do not intend to let it happen that people said we did our estimate wrong.
Q. On November 11, 2015, you sent a follow-up e-mail to a broader group of recipients, again raising the same concern about the EFSA's conclusion that glyphosate does not cause cancer, correct?
MS. GREENWALD: Objection, form.
(Exhibit 15-17, e-mail chain dated November 11, 2005, marked for identification, as of this date.)
A. OK, what is your question now?
Q. On November 11, you sent a follow-up e-mail to a broader group of recipients, again raising concerns about EFSA's conclusion that glyphosate did not cause cancer, correct?

MS. GREENWALD: Objection to form.
A. That would be incorrect.
I raised concerns about scientific flaws in the BFR addendum. I am concerned that the serious flaws of the BFR addendum, if not challenged, can continue to be used by regulatory agencies to dismiss critical science pertinent to regulatory decisions.
Q. You are asking this broader group of scientists to join you in a letter to be sent to the European regulators about glyphosate, correct?
A. That is correct.
MR. LASKER: Why don't we take a break?
MS. GREENWALD: That's up to you. Yeah, OK.
THE VIDEOGRAPHER: The time is 10:19 a.m. We're off the record.
(Recess.)
THE VIDEOGRAPHER: The time is 10:34 a.m. We are on the record.

BY MR. LASKER:
Q. Dr. Portier, before the break, we were talking about some e-mails that you had sent to some scientists in November of 2015.
Do you recall that?
A. Are you -- you're talking about document 15-17?
Q. Yes. And 15-16.
A. Could you read the question again -- restate the question.
Q. All I asked is we were talking about e-mails that you had sent to scientists --
A. We were talking about these two documents.
Q. -- in November 2015.
A. We were talking about these two documents, correct.
Q. As of the time you sent these e-mails, you had been signed on as an expert consultant for plaintiffs' counsel in this litigation for more than seven months, correct?
MS. GREENWALD: Objection, form.

A. I can't be certain of the exact amount of time.
MR. LASKER: Let's mark as the next document in line, which is 15-18.
(Exhibit 15-18, letter dated March 29, 2015, marked for identification, as of this date.)
Q. Dr. Portier, these are documents that you produced to us in response to our requests -- document requests for this deposition.
And as set forth in this cover letter, or this first letter, you signed an engagement letter signing up as an expert consultant with plaintiffs' counsel in this litigation on March 29, 2015, correct?
A. That is correct.
Q. So that would be more than seven months before?
A. I just wasn't sure of the dates. I'm sorry.
Q. So this is about seven months or so before you sent those e-mails out that we were just looking at, correct?
A. Probably, yeah.

Q. You did not disclose in your e-mail to these other scientists asking you to join you in this letter the fact that you were a paid consultant for plaintiffs' counsel in this litigation, did you?
MS. GREENWALD: Objection, form.
A. The draft document has a -- what is it at the end -- the manuscript has a thing at the end that says if anybody has any conflicts of interest, and that was already, as far as I remember, in the draft.
But the letter itself does not disclose that.
Q. Well, let's take this one step at a time.
The e-mail that you sent to these other scientists -- or the two e-mails you sent to these other scientists asking them to join you in this letter does not disclose the fact that you had been working as a paid consultant for plaintiffs' counsel in the litigation, correct?
A. The e-mail had an attachment. The attachment was the draft of the letter.

I believe the attachment had the conflict of interest to it on the draft, but I'm not certain.
Q. Let's look at the letter that you actually sent.
MR. LASKER: We will mark this as Exhibit 15-19.
(Exhibit 15-19, letter dated November 27, 2015, marked for identification, as of this date.)
Q. This is the letter that was ultimately sent -- the open letter that was sent by you and the individuals you had asked to join you to Commissioner Andriukaitis, European Commission?
A. Yes.
Q. This November 27, 2015 letter also does not disclose the fact that you had signed on as a paid consultant with plaintiffs' counsel in this litigation, correct?
A. That appears to be the case.
Q. So neither the e-mails that you sent to these other scientists asking you

to join you in the letter to the European regulators or the letter you actually sent to the European regulators in November of 2015, disclosed the fact that you had been working with plaintiffs' counsel in this litigation for over seven months, correct?

MS. GREENWALD: Objection to form.

A. That is a complicated question. Could you simplify it for me.

Q. We will take it in parts.

The two e-mails that you sent in November of 2015 to the scientists asking you to join you in this letter to the European regulators regarding glyphosate does not disclose the fact that you had been working as a private consultant for plaintiffs' counsel in this litigation, correct?

MS. GREENWALD: Objection, form.

A. Letter 15-17 and 15-16 do not say that I'm consulting with these law firms.

Q. And the open letter that you sent to the European Commission on November 27, 2015, also does not disclose the fact that

you had been working for over seven months as a paid consultant for plaintiffs' counsel in this litigation, correct?

A. That is correct.

Q. You signed on as a private consultant for plaintiffs' counsel nine days -- within nine days of the publication of The Lancet article announcing IARC's 2A classification of glyphosate, correct?

A. Where is the date of that again?

Q. We can show that to you.

A. Here it is, March 29 of 2015. That appears to be the case.

Q. When did you first speak with plaintiffs' counsel about working with them as an expert in this litigation?

A. March 20 -- soon -- before March 29.

I was already working with counsel --

Q. OK, so when were you --

A. -- on something different.

Q. So when did you -- let's ask that.

So this is with Mr. Lundy?

A. I don't know to what degree my discussions with them become confidential, so I'm at a loss here.

Q. I'm not going to ask you about the actual substance of the conversations, although that's a separate issue, not a privilege issue, but my question right now is dates.

When did you --

A. So that was with Mr. Lundy, in answer to your question.

Q. And you had been working with Mr. Lundy on other matters prior to March 2015, is that correct?

A. As far as I recall, yes.

Q. Were you -- for those other matters, have you been disclosed as a testifying expert in connection with those?

A. I'm not a testifying expert in those.

Q. Do you know if your involvement in that litigation has been publicly disclosed?

A. That I do not know.

Q. How long prior to March 2015 had

you been working with Mr. Lundy?

A. I don't know. Maybe two months.

Q. When do you recall -- and obviously, it's going to be sometime -- would it be fair to say sometime between March 20, when the IARC classification was announced, and March 29, when you had a conversation with Mr. Lundy about working as an expert in the glyphosate litigation?

MS. GREENWALD: Objection to form.

A. The answer is that's not correct.

Q. When did you have your first conversation with Mr. Lundy about working as an expert for plaintiffs in glyphosate litigation?

A. Sometime prior to this agreement here. Maybe a few days. I have no idea.

But the IARC monograph finding was announced the day the monograph closed. The publication was later.

Q. Do you recall whether you had your first conversation with Mr. Lundy before or after The Lancet article was published?

A. No.
Q. It could have been before, could have been after, you don't recall?
A. Don't recall.
Q. Is the other matter that you are working with or -- with Mr. Lundy related to a -- and you don't have to identify the substance, but a substance that has been part of an IARC review for carcinogenistic?
A. There have been many substances for review by IARC for carcinogenicity, this one included.
Q. So the other work you're doing for Mr. Lundy also involves an IARC-reviewed substance, is that correct?
A. That is correct.
Q. You had -- in your retention agreement on March 29, 2015, it notes that you will be working both with Mr. Lundy and with Ms. Greenwald for Weitz & Luxenberg, correct?
And her name is specifically mentioned on I think page 3 of the agreement.
A. Yes.

Q. Have you worked with Ms. Greenwald or her firm prior to this time?
A. No.
Q. Just one other question with respect to the other consulting work with Mr. Lundy.
The other matter, is that -- does that involve a substance for which you had served on the IARC working group?
A. Define "substance"?
Q. The issue that you're consulting with them -- the other issue that you are consulting with, does that involve exposures that were reviewed by IARC on a working group that you were part of?
A. Yes.
Q. So pursuant to the terms of your agreement with your March 29, 2015 letter, your engagement with plaintiffs' counsel began on March 29, 2015 and has continued through to the present, correct?
A. Yes.
Q. You were paid a $5,000 retainer by plaintiffs' counsel on or about March

29, 2015, correct?
A. Correct.
Q. You agreed in March 29 -- and this is on page 3 of your engagement letter -- to work under the exclusive direction of three attorneys at the Lundy Lundy law firm, and Robin Greenwald of Weitz & Luxenberg, correct?
MS. GREENWALD: Objection, form.
Q. That's No. 6.
MS. GREENWALD: Objection.
A. No. 6 says I will be working under the exclusive direction of Hunter Lundy, Matthew Lundy and Kristie Hightower with Lundy, Lundy, Soileau & South, and Robin Greenwald with Weitz & Luxenberg.
Q. You agreed on March 29, 2015 -- and this is No. 7 on -- numeral 7 on page 3 -- that any and all work product created by you or on your behalf in whole or in part during the course of this engagement authorized by these attorneys shall be considered a work for hire and the property of the firms, correct?
A. That is correct.

Q. You agreed on March 29, 2015, in -- on page 3, numeral 4, that you would not do any other work related to glyphosate outside the specifics of the litigation without the written consent of the plaintiffs' attorneys, correct?
A. It says, "I will not accept any RoundUp or glyphosate-related engagement with any law firm that is party to RoundUp and/or glyphosate-related litigation without their written consent."
Q. You also agreed on March 29, 2015 -- and this is on page 2 -- that you would not disclose your work for plaintiffs' counsel to media organizations, trade journals, professional publications, members of the public or other purported experts, correct?
MS. GREENWALD: Objection, form.
Q. That's No. 3.
MS. GREENWALD: Same objection.
A. No. 3, sorry.
Now, your question again, please.
Q. You agreed on March 29, 2015, that you would not disclose your work for

plaintiffs' counsel to media organizations, trade journals, professional publications, members of the public or other purported experts, correct?
A. Correct.
Q. You agreed to retain the plaintiffs' lawyers to represent you if anyone sought to compel you to disclose this information, correct?
A. I believe that's what part C says.
Q. And you began billing plaintiffs' counsel for your time as of -- and this is the first invoice attached -- June 17, 2015, correct?
A. Yes.
Q. You had a meeting on June 17, 2015 with Mr. Lundy, and then a second meeting with Mr. Lundy and Ms. Greenwald on June 19, 2015, correct?
A. That is correct.
Q. On October 19, 2015, you sent plaintiffs' counsel an invoice for your work on their behalf from June of 2015 to October of 2015, correct?

A. Yes.
Q. And you have been working as a paid consultant for plaintiffs' counsel throughout the entire time that you have had discussions with regulators in the United States and in Europe about glyphosate, correct?
MS. GREENWALD: Objection, form.
A. Again, I have to get that question in my head here.
Since March 29, 2015, I have been working with counsel.
Q. So during the entire period of time in which you have had conversations with U.S. regulators and European regulators about glyphosate, you have been a retained expert for plaintiffs' counsel in this litigation, correct?
MS. GREENWALD: Objection, form.
A. The e-mails, discussions and everything else that I sent to the regulators is not part of the work I have done for this law firm.
Q. That was not my question.
A. OK, what was your question again.

Q. During the entire period of time in which you have had conversations with U.S. and European regulators about glyphosate, you have been a paid consultant for plaintiffs' counsel in this litigation, correct?
MS. GREENWALD: Objection, form.
A. Yes.
Q. Now, you attached to your expert report some submissions that you have made to European regulators and to the EPA in the United States in opposition to the decisions or findings by those agencies that glyphosate does not cause cancer, correct?
A. The -- if I remember the letters correctly, they are raising scientific concerns about the way in which these particular agencies reviewed the evidence for glyphosate and cancer.
Q. These submissions that you have made to the regulators contain much of the same scientific analyses that you have included in your expert report in this litigation in support of the plaintiffs,

correct?
MS. GREENWALD: Objection, form.
A. I -- it's not correct.
Q. So is it -- let me ask this: In your submissions to the European regulators and U.S. regulators, you represented pooled analyses of animal cancer bioassays, correct?
A. Yes, correct.
Q. And you present those same pooled analyses in your expert report in this litigation, correct?
MS. GREENWALD: Objection, form.
A. No, not correct.
Q. You have revised them over the course of time, correct?
MS. GREENWALD: Objection, form.
A. I have revised the way in which I do the pools analyses over time.
Q. And you have submitted different pooled analyses to the regulators over time, correct?
A. That is correct.
Q. And you have submitted pooled analyses also in your expert report,

correct?
A. That is correct.
Q. And some of the pooled analyses in your expert report you are continuing to use in your submissions to the regulators, correct?
MS. GREENWALD: Objection to form.
A. That isn't correct.
Q. You have not presented any of the information from your -- any of your analyses in the expert report to regulators?
A. You're proposing a sequence of events that is not correct.
Q. Not my question.
A. I know it's not your question, but the answer to the question has to do with the sequence of the events.
Pooled analyses were done for my letters to the regulators and others with these data.
That was done prior to any expert report I prepared for this litigation.
Q. But both those pooled analyses

were conducted after you had been retained as a private expert for plaintiffs' counsel in this litigation, correct?
MS. GREENWALD: Objection, form.
A. What was the term you used for there?
Q. Your pooled analyses that you submitted to the U.S. and European regulators were prepared after the time that you signed on as a paid expert for plaintiffs' counsel in this litigation, correct?
MS. GREENWALD: Objection, form.
A. A paid consultant and/or expert, yes.
Q. The submissions that you made -- strike that.
In your submissions to these regulators, the letters that you submitted, you do not disclose your relationship with plaintiffs' counsel as an expert in private litigation against Monsanto, do you?
MS. GREENWALD: Objection, form.
A. I do not recall in my letters to EPA whether I did such a thing. I can't

answer that part of it.
Clearly in the letter you have given me, that was not in there.
Q. The letter I gave you was the European regulators, correct?
A. The first letter I sent.
MR. LASKER: Let's mark as Exhibit 15-20.
(Exhibit 15-20, attachment to the expert report, marked for identification, as of this date.)
Q. And this was one of the attachments to your expert report in this litigation and a submission that you made to the EPA on October 4, 2016.
A. OK.
Q. You begin your submission to EPA in October of 2016 with a disclaimer, correct?
A. This work was done with my own research and on my own time. Yes.
Q. And you state -- you told the EPA, and anyone else who was looking at your submissions, that you had, quote, received no reimbursement for any of these

comments, correct?
A. That's correct.
Q. And during this same time period, you were publicly proclaiming that, quote, nobody has paid me a cent to do what I am doing with glyphosate. I have no conflict whatsoever, correct?
MS. GREENWALD: Objection, that is not what this says.
Q. Let's look at this document.
MR. LASKER: We will mark this 15-21.
(Exhibit 15-21, document entitled, "Oh Brother, CropLife Questions, Makeup of Glyphosate Panel," marked for identification, as of this date.)
Q. Dr. Portier, this is an article dated October 12, 2016, entitled, "Oh Brother, CropLife Questions, Makeup of Glyphosate Panel."
Do you see that?
A. Yes, I do.
Q. This is discussing the EPA's evaluation of glyphosate, correct?

MS. GREENWALD: Objection, form.
A. This is an article by Steve Davies discussing CropLife questioning the makeup of the glyphosate panel.
Q. On the second page of this document, at the bottom of the page, there is an -- you have been interviewed and there's some various statements you have made regarding glyphosate, correct, in the panel?
A. I'm sorry?
Q. At the bottom of the second page, there is various discussions, comments that you have made to the reporter in connection with this article, correct?
MS. GREENWALD: Objection, form.
A. This pertains to the work I did part time for the Environmental Defense Fund, and it's conceivable the reporter got this quote out of context.
So I can't -- I can't tell you whether certainly I got it or not. I've been misquoted many times.
Q. The quote in this article that is attributed to you in October of 2016 is,

"Nobody has paid me a cent to do what I am doing with glyphosate," and "I have no conflict of interest whatsoever," on the bottom of the page.
Do you see that?
MS. GREENWALD: Objection, form.
A. That -- those two sentences are on the bottom of the page.
Q. Did you ever have any follow-up discussion with this reporter telling him you misquoted me?
A. I have no problem -- probably not. I'd never do that.
Q. Prior to your submissions to EPA in October of 2016, you had, of course, in fact, been paid by plaintiffs' counsel to assist them in the glyphosate litigation against Monsanto, correct?
A. Prior to my submissions to EPA in October of 2015 -- yes.
Q. And as of October 2016, when you were quoted in this article as telling the world that you had no conflict whatsoever, you, in fact, had been consulting with plaintiffs' counsel in this litigation for

more than 18 months, correct?
MS. GREENWALD: Objection, assumes facts not in evidence and form.
Q. You can answer.
MS. GREENWALD: You can answer. I have my objection on the record.
A. Repeat the question now.
Q. As of October '16 -- October 2016, when you were quoted in this article as stating that you had no conflicts whatsoever, you had, in fact, been consulting with plaintiffs' counsel in the glyphosate litigation against Monsanto for more than 18 months, correct?
MS. GREENWALD: Objection. Same objection as before.
A. At the time this quote in this article is written, I was working with counsel, yes.
Q. And had been working with them for more than 18 month, correct?
MS. GREENWALD: Same objection.
A. That is correct.
Q. And when you were quoted in this article as saying nobody had paid you a

cent for what you are doing with glyphosate, you had by that time sent plaintiffs' counsel three separate invoices for your glyphosate work in litigation against Monsanto, correct?
MS. GREENWALD: Objection, form.
A. The work being referred to here was the analyses and evaluations and reading of the regulatory documents, for which nobody paid me.
Q. So it is your testimony that plaintiffs' counsel did not pay you to review the regulatory documents?
A. They were paying me to provide them with advice and consulting. Until they decided that I would be an expert witness, there was nothing they were requiring me to read or review except an occasional paper they would send me.
Q. Let me ask you to look at Exhibit 15-18. It is the retention agreement and attached exhibits.
A. Yes.
Q. And if you look at page 7 of this document, it's the invoice dated June 30,

2016, correct?
A. Page 7?
June 30, 2016, there is here June 30, 2016.
Q. And this invoice is four months before you submitted -- had your submission to the EPA, correct?
A. Yes.
Q. And in this invoice, you are charging -- or you're billing plaintiffs' counsel for your work in reading and evaluating the EPA's glyphosate documents, correct?
A. That's what it says. I stand corrected from my previous statement.
Q. So plaintiffs' counsel had paid you to evaluate EPA's glyphosate document, correct?
A. That's what it appears to say.
Q. And after being paid by plaintiffs' counsel to evaluate the EPA document, you then made submissions to EPA, correct?
A. But not the evaluation I made for plaintiffs' counsel.

Q. Dr. Portier, let me just ask the question again.
Four months after being paid by plaintiffs' counsel to evaluate the EPA's glyphosate document --
A. I submitted --
Q. -- you made submissions to EPA regarding your evaluation of their assessment, correct?
MS. GREENWALD: Objection, form.
A. Four months after -- I provided an evaluation of EPA's assessment to them, correct.
Q. As of -- just to go back to the question that was pending, as of October of 2016, when you were quoted in this article as stating that nobody had paid you a cent for what you were doing with glyphosate, you had by that time submitted three separate invoices to plaintiffs' counsel billing them for your work on glyphosate, correct?
MS. GREENWALD: Objection, form.
A. The quote that was in that newspaper article that says what you said

it said happened four months, I guess, or so after my being paid by plaintiffs' counsel to evaluate the EPA risk assessment, that is correct.
Q. And by that time, you had, in fact, sent three separate invoices to plaintiffs' counsel for your work in the glyphosate litigation, correct?
MS. GREENWALD: Objection, form.
A. By what time again?
Q. October of 2016?
A. October 2016.
Yes, I had sent three invoices.
Q. As of June 2017, which is the last invoice we have, you have billed plaintiffs' counsel somewhere over $160,000 for your work in preparing your analyses of glyphosate, correct?
MS. GREENWALD: Objection, form.
A. I -- I have no idea what the total is, but maybe. It's a substantial amount of money.
Q. And since -- the last invoice we have is dated, as I said, I guess it's June 18, 2017, through the time -- through June

13, 2017, and then we have a -- one invoice for an airplane ticket.
You have continued to do work on this litigation subsequent to June 13, 2017, correct?
You prepared your rebuttal report?
A. I've done work since then, that is correct.
Q. And I take it you have not yet billed plaintiffs' counsel for that additional work?
A. Is that privileged?
Q. No.
A. No?
No, I have not.
Q. Do you have an approximate amount of time outstanding for your bill for plaintiffs' counsel?
A. Approximate?
No. I mean, I have an exact somewhere.
Q. Have you done more than 20 hours of work on your rebuttal report?
A. Yeah.

Q. Have you done more than 40 hours of work on your rebuttal report?
A. Maybe not.
Q. So we have somewhere on the order of another $15,000 maybe, or is it more?
You don't know?
A. I don't know. I don't really pay much attention to it.
Q. Pursuant to the expressed terms of your engagement letter with plaintiffs' counsel, the work that you did and that you were paid for in evaluating the EPA assessment of glyphosate is "work for hire and the property of the plaintiffs' law firms," correct?
MS. GREENWALD: Objection to form.
A. Let me be clear: I think there is a mistake here -- and this is my mistake, I should have pointed it out earlier -- this is a different EPA glyphosate document than the one that I was complaining about in October. This is a different document.
This was a single, two-page

release from the Clark subgroup of EPA about glyphosate that appeared, I think, in March or June or April of 2016, whereas the comments made later that year were on EPA's draft risk assessment.
Q. Let's go back to the June 30, 2016 e-mail.
You said this was reviewing a two-page document?
A. June 30 --
Q. 2016 invoice.
A. It's a two- or three-page technical document, yes.
Q. You have billed plaintiffs' counsel for 19 hours in reviewing that document, is that correct?
A. Yes.
Q. So you spent 19 hours reviewing a two-page document?
MS. GREENWALD: Objection to form.
A. If you have the document, we can look at that time, but it is a very technical document. It requires that you go back and look at the animal experiment,

experimental evidence. It required me going back to look at the epidemiology experimental evidence. It takes time to give a good scientific response.
Q. So in connection with this work and evaluating the EPA glyphosate document, you spent 19 hours with -- doing an extensive dive into the glyphosate science, is that your testimony?
MS. GREENWALD: Objection to form.
A. It's one memo. I spent 19 hours researching it.
Q. And pursuant to the terms of your engagement letter, this 19 hours you spent in evaluating glyphosate and evaluating the EPA, this EPA assessment was work for hire and the property of plaintiffs' law firm, correct?
MS. GREENWALD: Objection, form.
A. I lost you on that question.
Q. Let's go back to the engagement letter, the beginning of this document, and on page 3, numeral 7, it says, any and all work product created by you or on your

behalf in whole or in part during the course of this engagement authorized by this committee shall be considered a work for hire and the property of the plaintiffs' law firms, correct?
A. This speaks of work product. It doesn't speak of knowledge gained.
Q. Is the work that you were paid for in evaluating EPA assessment of the 19 hours --
A. That wasn't the EPA assessment. It was a memo.
Q. In evaluating, as you say in your invoice, the EPA glyphosate document, that is work for hire and intellectual property of the plaintiff law firm, correct?
MS. GREENWALD: Objection.
That's not his testimony. He asked and answered it.
A. No. The work product from that would be the property of the law firm.
Q. Is it your testimony that the 19 hours that you spent in assessing the scientific data in connection with this EPA document did not play any role whatsoever

in the submissions or the analyses that you presented in your submissions to EPA and to the European regulators?
MS. GREENWALD: Objection, form.
A. Intellectual knowledge gained in any endeavor can obviously carry over into the next endeavor. I can't possibly give you a "no" answer to such a question.
The work product from that evaluation is the property of this firm and it was subsequently given to them.
Q. And the work product that your evaluation, for which you were paid by plaintiffs' law firm in or about June 2016, that work also folded -- was folded into the submissions that you provided to the EPA and to the European regulators, correct?
MS. GREENWALD: Objection, form.
A. No.
Q. Is it your testimony that you did not make use of any of the 19 hours of evaluation that you conducted and were paid for by plaintiffs' law firms in preparing your submissions to the EPA and to the

European regulators?
MS. GREENWALD: Objection, form. Asked and answered.
A. As I said before, intellectual gains from reading documents play a role in anything I ever write or do in the future. Hence, I cannot say "no" to that question.
Q. But in your submission to the EPA, when you submitted your analysis, you did not disclose the fact that you had been paid by plaintiffs' counsel to review the scientific data on glyphosate, correct?
MS. GREENWALD: Objection, form.
A. The document I submitted to EPA about the scientific failures in their evaluation of the scientific evidence for glyphosate did not disclose that I worked for plaintiffs' law firm.
Q. You have been -- you have had a number of conversations with individual EPA officials behind the scenes about glyphosate, correct?
MS. GREENWALD: Objection, form.
A. On what topic?
Q. Glyphosate.

MS. GREENWALD: Same objection.
A. I have spoken with the EPA officials on the glyphosate issue.
Q. And you have had private e-mail communications with Jim Jones about glyphosate, correct?
MS. GREENWALD: Objection, form.
A. I have sent to Jim Jones concern -- my concerns about glyphosate.
Q. In private e-mail communications, correct?
MS. GREENWALD: Objection, form.
A. It was to his EPA e-mail address, which is not a private e-mail address.
Q. Well, the e-mail that you sent was not disclosed publicly. You had a private communication with Mr. Jones on e-mail, correct?
MS. GREENWALD: Objection, form, asked and answered, argumentative.
A. I -- she is right, I answered the question.
Q. So did you publicly disclose -- have you publicly disclosed your e-mail communications with Jim Jones at EPA about

glyphosate?
MS. GREENWALD: Objection, form.
A. I think they did.
Q. And is it your understanding that every communication you have had with Mr. Jones has been disclosed publicly?
MS. GREENWALD: Objection, form.
A. That I don't know. But, of course, you can FOIA them and you will know which ones.
Q. Have you had telephone conversations with Mr. Jones about glyphosate?
A. Not that I recall.
Q. Who is Jim Jones?
A. He was the director of the office of pesticides and toxic substances, the assistant administrator at EPA.
Q. How do you know Mr. Jones?
A. I've known Mr. Jones for years. I was a government official. He was a government official. We were working on environmental issues. That's how I knew him.
Q. In your e-mail communications

with Mr. Jones, did you disclose to him the fact that you were a paid expert for plaintiffs' counsel in this litigation?

A. I don't recall.

MR. LASKER: Mark as Exhibit 15-22 and 15-23 two e-mail communications we have between you and Mr. Jones and others at EPA.

(Exhibit 15-22, e-mail chain Bates stamped EPAHQ6149, marked for identification, as of this date.)

(Exhibit 15-23, e-mail chain Bates stamped PORTIER0000055 through 61, marked for identification, as of this date.)

Q. Dr. Portier, Exhibit 15-22 and 15-23 are two e-mail exchanges, one dated May of 2016, the other dated June of 2016, that include e-mail communications between you and Mr. Jones, correct?

A. Which document are we talking about? Both of them?

Q. Yes.

A. The first document is from Jones -- to Jones from me it appears, and

the second document is from Anna Lowit to me but there is something further down.

Q. If you go to the beginning of the conversation, there's e-mail exchanges. It starts off with an e-mail exchange between you and Jim Jones, and then some further e-mail communications, correct?

MS. GREENWALD: Objection, form.

A. I don't know where the start of that conversation is. I'm sorry.

Q. OK. If you look at Exhibit 15-23, I believe the first e-mail in the chain, and it seems like we got it here twice -- nope. It goes back and forth.

But the first chronological e-mail that I see in this chain is an e-mail at the very end of this on June 23, 2016, from you to Jim Jones correcting an error in the table that you had, I guess, sent to him, correct?

The very last page of the document --

A. I had an area 1 table that I had to correct, new version attached, yes.

Q. And you sent that to Mr. Jones on June 23, 2016, correct?

A. Yes.

Q. And this is at the same time, almost exactly the same time, that you billed plaintiffs' counsel for the 19 hours of work that you had conducted in evaluating an EPA document on glyphosate, correct?

MS. GREENWALD: Objection, form.

A. The dates are going to be close.

Q. So in May of 2016, you spent 19 hours for plaintiffs' counsel reviewing an EPA glyphosate document and were paid by plaintiffs' counsel by that, and then in June of 2016, you made a submission to EPA with at least one table of an evaluation of glyphosate, correct?

A. I don't know. Probably.

Q. You produced this e-mail communication -- at least the June 2016 e-mail communication in response to our document requests, but we did not have the assessment that you actually sent to EPA.

MR. LASKER: So we would request

that that be produced.

MS. GREENWALD: That was produced all PowerPoints supplied by Chris Portier were supplied to you guys.

MR. LASKER: The PowerPoints, yes.

MS. GREENWALD: Correct. That would be --

MR. LASKER: Is this a PowerPoint presentation?

MS. GREENWALD: PPTX is the root of the document attached.

MR. LASKER: Fair enough. We will figure that out.

Q. Although -- so -- in any event, in these communications -- e-mail communications, and particularly the communication in June of 2016, right after you had been paid by plaintiffs' counsel to evaluate an EPA document, you do not disclose to Mr. Jones that you are a paid consultant for plaintiffs' counsel in the litigation, correct?

MS. GREENWALD: Objection, form.

A. In this e-mail right here, I do

not do that. That is correct.
Q. Do you recall other e-mail communications that you had with Mr. Jones during this period of time?
A. I had at least one more, yes.
Q. That has not been produced to us in this litigation.
Do you still have copies of that communication?
A. If you didn't get it, I don't have it.
Q. Do you recall the substance of this other e-mail communication with Mr. Jones?
A. It had to do with errors I saw in the EFSA. It contains much of the stuff I was already sending to EFSA, along with some linkage to problems with some of the things the EPA had done including the memo.
Q. So in June of 2016, you were having a series of e-mails communications with Mr. Jones at EPA based upon issues you had identified through your paid work for plaintiffs' counsel in this litigation, correct?

MS. GREENWALD: Objection, form.
A. It's possible.
Q. You do not have any recollection, sitting here today, of ever disclosing to Mr. Jones that you were working for plaintiffs' counsel during this time period, correct?
A. I don't have a recollection of disclosing or not disclosing. I don't really know.
Q. You also had communications with Ann Lowit at EPA, correct?
A. Yes, that is correct, briefly.
Q. And that would be in this e-mail exchange?
A. This e-mail exchange and then -- I don't know what else is in here.
Q. Do you recall ever disclosing to Ann Lowit that you were a paid consultant with plaintiffs' counsel suing Monsanto?
A. No, I don't recall.
MS. GREENWALD: Objection, form.
Go on.
Q. Do you recall having any other conversations with any other EPA employees

about glyphosate?
A. Did I have any conversations -- yes.
Q. What other EPA employees did you have conversations with?
A. I think his name is Steve Johnson, who is in charge of the EPA science advisory panel reviews. I sent him correspondence when I sent him my reviews.
Other EPA employees that I would have spoken to?
I speak with Vincent Cogliano. Sometimes, I might have spoken with him.
Q. Do you recall disclosing to either of these EPA officials the fact that you were a paid consultant for plaintiffs' counsel in this litigation?
A. I don't know about Steve. I don't -- I don't think so.
Q. Have you had any conversations with Tom Burke?
A. I've had lots of conversations with Tom Burke.
Q. About glyphosate?
A. I don't recall.

Q. Can you name for me the individual -- individuals in the European government regulators or government officials with whom you have spoken about glyphosate?
A. There is no way I could remember them all. I'm terrible with names. No. I'm sorry.
Q. Was it more than five people?
A. Yes.
Q. More than ten?
A. I don't know. I can't distinguish between a regulator and a politician in Europe. So I have a difficult time on working out an answer to that question.
Q. Do you recall disclosing to any of those European officials that you were a paid consultant for plaintiffs' counsel in litigation against Monsanto?
MS. GREENWALD: Objection to form.
A. Yes.
Q. Was that in your e-mail -- in your e-mail communications with them or in

your private conversations?
A. I don't know if I used that in my e-mail to Andriukaitis, but it is the first thing we discussed when I walked in his door.
Q. When was that?
A. When we met -- whenever the first time we met after I wrote that letter. I don't know the exact date. I'm sorry.
Q. In your -- you have -- remind me now --
A. Actually, I'll correct that. I'm sorry.
I told him that beforehand. I told his staffer, when we were on the phone when she called to invite me, I said, I have this linkage. Is this a problem?
And they said, no.
Q. You provided testimony in front of the European Commission, is that correct, or you have been invited to?
A. I provided testimony to the German Bundestag, but I did not provide testimony in front of the European Parliament.

Q. In your testimony in Germany, did you disclose that you were a paid consultant for plaintiffs' counsel in this litigation?
A. I can't recall.
Q. Have you worked with a group called the "Health and Environmental Alliance" in connection with their work on glyphosate for registration in Europe?
A. I have advised them now and then. And they have advised me on issues.
Q. We talked earlier about that issue, about whether you should register as a lobbyist or not register as a lobbyist.
In your conversation with the European staffer about whether you should register, did you disclose to him the fact that you were a paid consultant for plaintiffs' counsel in the glyphosate litigation?
MS. GREENWALD: Objection to form.
A. Yes.
Q. There are a number of other organizations that have reviewed glyphosate

during this time period after IARC reaches classification, correct?
MS. GREENWALD: Objection to form.
A. A number of organizations have reviewed the scientific literature on glyphosate following IARC's review of the literature for glyphosate.
Q. And despite Europe's submissions of various analyses, the European Food Safety Agency has continued to reach a conclusion that glyphosate does not pose a risk for cancer, correct?
MS. GREENWALD: Objection, form.
A. That is correct.
Q. And the European Chemical Agency, ECA, has continued to conclude that glyphosate does not pose a risk of cancer in humans, correct?
MS. GREENWALD: Objection, form.
A. ECA has for the first time concluded that glyphosate shows no risk for cancer in humans.
Q. The -- obviously, the German regulators, who you spoke with, they have

continued to conclude that glyphosate did not pose a risk for cancer, correct?
MS. GREENWALD: Objection, form.
A. That's not correct.
Q. The BFR has now concluded that glyphosate causes cancer, is that your testimony?
MS. GREENWALD: Objection, form.
A. There are more than one German agency dealing with glyphosate. BFR has not changed their mind.
Q. That glyphosate does not pose a risk for cancer, correct?
A. Correct.
Q. The Canadian regulators have concluded that glyphosate does not pose a risk for cancer, correct?
A. I don't know.
Q. The World Health Organization, JPMR, has concluded that glyphosate through food does not pose a risk for cancer, correct?
MS. GREENWALD: Objection, form.
A. I'd have to look at their conclusion. It's a little more detailed

and nuanced than that.
Q. Your general understanding though is that the JPMR in conducting its analysis did not raise a concern that glyphosate causes cancer, correct?
MS. GREENWALD: Objection, form.
A. Again, I would have to look at JMPR's document and see.
Q. The Japanese public health regulators have concluded that glyphosate does not cause cancer, correct?
A. I have no idea.
Q. The Australian public health regulators have concluded that glyphosate does not cause cancer, correct?
A. I think I might have read a news article on that, but other than that, I have no idea.
Q. The New Zealand public health regulators have concluded that glyphosate does not cause cancer, correct?
A. I think so. I got some information from one group about that. I don't know if that's concluded or not.
Q. You actually appeared in a radio

program in New Zealand urging the regulators in New Zealand to find glyphosate as a carcinogenic, didn't you?
A. I might have.
Q. In response to our document request for this deposition, you produced a series of slide decks for presentations that you had given to various scientific agencies, correct?
MS. GREENWALD: Objection, form.
A. I have produced a slide deck of any -- exactly what you asked for, any presentation I did on glyphosate.
Q. And at each of those scientific methods you presented some version of the pooled analyses that you conducted on glyphosate that are the same types of analyses you were proffering in this litigation, correct?
MS. GREENWALD: Objection, form.
A. They're not exactly the same.
Q. They are the same type of pooled analyses, correct?
And you have been revising them as you have gone along, correct?

MS. GREENWALD: Objection, form.
A. There are pooled analyses in these slides.
Q. And some of those pooled analyses, in fact, are exactly the same as the analyses you have submitted in this litigation, correct?
MS. GREENWALD: Objection, form.
A. The studies that went into the pooled analyses are exactly the same as the studies in this litigation.
The method by which I pooled them and do a trend test of the overall response from the pooled data is in the slides as well as in this litigation.
Q. Did you make a disclaimer -- well, first of all, none of your slide decks themselves provide a written disclaimer that you are working as an expert for plaintiffs in glyphosate litigation, correct?
MS. GREENWALD: Objection, form.
A. If you say so. I haven't looked.
Q. Did you make a disclaimer at the beginning of each of these scientific

meetings when you presented this data that you were a paid expert consultant for plaintiffs' counsel in private litigation against Monsanto?
A. I can't be certain for every one of them.
Q. You have also given numerous interviews to media outlets and various bloggers commenting on glyphosate issues, correct?
MS. GREENWALD: Objection, form.
A. I've done interviews with all sorts of people on glyphosate issues.
Q. And have you disclosed to each of these media outlets your role as a paid expert consultant for plaintiffs' counsel in this litigation?
A. I can't be certain.
Q. Well, for example -- strike that.
You have also written a number of commentaries about glyphosate in the scientific press, correct?
A. I've written two, I believe.
Q. Well, let's look at one of the first of those.

MR. LASKER: This is -- we will mark this as --
MS. GREENWALD: 24.
MR. LASKER: So it is 15-24. I'm sorry.
(Exhibit 15-24, article from Horizons, dated March 7, 2016 with attachment, marked for identification, as of this date.) marked
Q. Dr. Portier, this is an article you wrote for the Swiss science magazine Horizons, in which you debated that the head of the pesticides unit at the European Food Safety Authority about the safety of glyphosate, correct?
A. This article appeared in a Swiss magazine called Horizons, and yes, there was pro and con, and Jose Tarazona did the con and I did the pro.
Q. This was March 2016, one year after you had signed on as a paid consultant -- paid expert for plaintiffs' counsel in this litigation, correct?
MS. GREENWALD: Objection, form.
A. This is -- yeah, about a year.

Q. And in this article, there is a -- you identify yourself as the former director of the U.S. National Institute of Environmental Health, correct?
A. I certainly would never have identified myself as that. That's incorrect.
Q. There is -- you do not have any disclosure anywhere in this article about the fact that you had been for a year a paid expert for plaintiffs' counsel in litigation against Monsanto, correct?
MS. GREENWALD: Objection, form.
A. There does not appear to be anything on this page that suggests I am a paid consultant for this law firm on glyphosate issues.
Q. And let's look at, as 15-25 -- this is ...
(Exhibit 15-25, article entitled, "Re: Tarazona et al.: Glyphosate toxicity and carcinogenicity: a review of the scientific basis of the European Union assessment," marked for identification, as of this date.)

Q. This is a reply that you published in the journal "Archives of Toxicology," correct?
A. This is a letter to the editor in the journal "Archives of Toxicology."
Q. And in this letter you are again addressing the European Union's assessment of glyphosate and its difference with IARC regarding glyphosate, correct?
A. I don't know if I was talking about its difference with IARC. Give me a moment, please.
No, I don't believe this was discussing the differences with IARC. I believe this was only discussing the scientific problems with the EFSA glyphosate risk assessment and pointing out to the authors of that evaluation, that they missed a number of positive rodent findings.
Q. But this is a -- again, an article or a letter that you had published in the Archives of Toxicology presenting your analysis of the glyphosate science, correct?

MS. GREENWALD: Objection, form.
A. No. It is noting problems with the EFSA risk assessment and some of the analysis I have done for glyphosate.
Q. And this letter was submitted in May of 2017, correct?
A. Probably, yes.
Q. As of this date, you had been working as a paid expert for plaintiffs' counsel for more than two years, correct?
MS. GREENWALD: Objection, form.
A. As of May 2017, I was working for plaintiffs' counsel, correct.
Q. And you had billed plaintiffs' counsel, and we can do the math, but somewhere around $150,000 as of this date for your work on glyphosate, correct, plaintiffs' counsel?
A. I had billed them. That is correct.
Q. And you do not disclose anywhere in this letter to the editor in the journal Archives of Toxicology the fact that you were a paid expert for plaintiffs' counsel in private litigation against Monsanto, do

you?
MS. GREENWALD: Objection to form.
A. This journal doesn't ask for that. I don't know.
Q. Dr. Portier --
A. It's not on the document.
Q. So just so the record is --
A. To answer your question, it is not on the document.
Q. In your letter to the editor that was published in Archives of Toxicology in 2017 -- in June of 2017, you do not disclose the fact that you were -- you are a paid expert for plaintiffs' counsel in litigation against Monsanto, correct?
MS. GREENWALD: Objection, form.
A. In Exhibit 15-25, I do not disclose that I was a paid consultant for this law firm in this litigation.
Q. In 2016, you made a presentation about glyphosate to the Collegium Ramazzini.
A. No, I didn't make a presentation.
MR. LASKER: Let's mark -- this

will be Exhibit 26.
(Exhibit 15-26, article entitled, "The glyphosate saga: an example of influence of unsound science and interest groups in public health decision making," marked for identification, as of this date.)
A. Yes.
Q. This is -- Exhibit 15-26 is a poster presentation that was presented -- it was called "Ramazzini Days."
What is Ramazzini Days?
A. Ramazzini Days is something that Ramazzini Institute holds once a year where -- it is a scientific conference.
Q. At this scientific conference, there was a poster presentation regarding glyphosate, and you are one of the coauthors of that poster presentation, correct?
MS. GREENWALD: Objection, form.
A. The document 15-26, I am one of the coauthors.
Q. That is a poster presentation that was presented at Ramazzini Days,

correct?
MS. GREENWALD: Objection, form.
A. Yes, I guess.
Q. And this presentation, you are listed as an author along with five individuals who are identified as Ramazzini fellows, correct?
A. One, two, three, four, five, that is correct.
Q. As of this date, you are not a Ramazzini fellow, correct?
A. As of this date, I am not -- I was not a -- well, I don't know. I honestly don't know.
Q. You have recently become selected --
A. I am a Ramazzini fellow --
Q. OK.
A. -- yes.
I guess by this date I wasn't because I'm not listed as one.
Q. So it was sometime in the last year that you became a Ramazzini fellow, is that fair?
A. I would think so, yes.

Q. And one of the other scientists that you were -- that you're presenting with here is Philip Landrigan, correct?
A. That is correct.
MS. GREENWALD: Objection to form.
Q. Philip Landrigan actually assisted, helped you, in preparing that open letter that you submitted to the European regulators in November of 2015, correct?
MS. GREENWALD: Objection to form.
A. Philip Landrigan's name is on that letter, I believe. I would have to check to make sure.
And yes, he did provide comments.
Q. What other, if any, collaborations have you had with Philip Landrigan relating to glyphosate?
MS. GREENWALD: Objection to form.
A. Probably a few things. I can't recall.
Q. Have you consulted with

Page 130

Dr. Landrigan about further research relating to glyphosate?
A. No.
Q. Have you communicated with Mr. Landrigan about European regulators' assessment of glyphosate beyond the open letter in November of 2015?
MS. GREENWALD: Objection, form.
A. Say it again, please.
Q. Have you consulted with Philip Landrigan about the European registration of glyphosate apart from that letter in November of 2015?
MS. GREENWALD: Objection, form.
A. So first, I don't consult with Philip Landrigan.
Q. Communicate?
A. We collaborate or we communicate, so --
Q. That's a better word.
A. -- let me make that clear.
Q. So let me reask it.
Have you collaborated with Philip Landrigan about glyphosate registration in Europe outside of that November 2015 letter

Page 131

that we have already discussed?
A. Not that I recall.
Q. Have you collaborated with Philip Landrigan related to the EPA's assessment of glyphosate?
MS. GREENWALD: Objection to form.
A. Not that I recall.
Q. Have you collaborated with Mr. Landrigan about assessments of the glyphosate science?
MS. GREENWALD: Object to form.
A. Mr. -- Dr. Landrigan is a cosignatory of the open letter, and that open letter discusses the science around glyphosate.
So I guess the answer to that question is yes.
Q. You said you had a number of other collaborations with Mr. -- with Dr. Landrigan, if I understood correctly, regarding glyphosate --
A. No.
Q. OK.
A. Sorry, none.

Page 132

Q. In your poster presentation at Ramazzini Days, in the conclusion, you state that -- you talk about economically motivated activities having influenced the glyphosate science, correct?
MS. GREENWALD: Objection, form.
A. I should pay more attention to what my coauthors write sometimes.
That is what it says.
Q. You do not disclose anywhere in this poster presentation your role as a paid expert for plaintiffs' counsel in private litigation against Monsanto, do you?
MS. GREENWALD: Objection, form.
A. Not specific. I list myself as an environmental health consultant.
Q. Again, just so the record is clear, you do not disclose the fact that you were a paid consultant for plaintiffs' counsel in private litigation against Monsanto?
A. That is correct.
Q. Now, you're -- the point you're making in this poster presentation instead

Page 133

is about what you characterize as an improper influence of corporate money on scientific research, is that correct?
MS. GREENWALD: Objection, form.
A. I don't --
Q. In the conclusion?
MS. GREENWALD: Same objection.
A. That's what the -- I am sorry, let's be clear.
First, I want to make something clear: You asked me if I made a presentation to them. Baur -- Xavier Baur made the presentation. I did not attend this meeting.
Now, you just asked me -- if you could repeat the question.
Q. In the poster presentation -- and you are a coauthor of the poster?
A. Correct.
Q. In the poster presentation, the concern is being raised about potential improper influence of corporate money on scientific research, correct?
MS. GREENWALD: Objection, form.
A. That's one little bit at the tail

end, correct.
Q. And you and the other authors are calling upon the Collegium Ramazzini to take a stand against corporate funding of scientific research --
MS. GREENWALD: Objection to form.
Q. -- as part of this presentation, correct?
MR. SNOO: Objection to form.
A. Actually, no. We encouraged the Collegium Ramazzini to again support an IARC evaluation of carcinogenicity.
Q. In the earlier paragraph, right before where you are reading, you talk about:
"Glyphosate is a one example of inappropriate corporate influence of public health regulation by the use of unsound scientific reviews" --
A. But your question said --
Q. -- "and would call for increased sensitivity, full transparency and implementation of effective rules governing decision-making bodies," correct?

MS. GREENWALD: Objection, form.
A. But we are not calling for the Ramazzini Institute to do that, or Collegium Ramazzini, which was your question to me.
Q. So you are calling for scientists more broadly, is that fair?
MS. GREENWALD: Objection to form.
Q. Or regulators?
MS. GREENWALD: Same objection.
A. We are calling for an increased sensitivity, full transparency and the implementation of effective rules governing decision-making bodies. That's what we are calling for. That's what we said.
Q. Am I correct in my understanding then Collegium Ramazzini does not take money from private corporations for its scientific research?
A. I have no idea.
Q. During your time in government at NTP, you worked on collaborative efforts between the NTP and the Collegium Ramazzini, correct?

A. I don't recall.
We certainly did some work with them trying to help them improve their cancer bioassays. That I do recall.
Q. And in your CV --
MR. LASKER: And you can mark that as 15-27.
(Exhibit 15-27, curriculum vitae, marked for identification, as of this date.)
Q. If you look at the fifth page under your U.S. Government service activities, and it's about three-quarters down the page under U.S. Government service activities, you are listed as an organizer, formal collaborative agreements between NTP and Ramazzini Foundation from 2001 to 2006, correct?
A. That is correct.
Q. And so for this five- or six-year period then, the NTP and Ramazzini Foundation were involved in collaborative agreements relating to toxicological studies?
MS. GREENWALD: Objection, form.

A. It was more related to pathology and the storage of data from toxicological studies.
Q. During this period, you were the organizer of these agreements.
Did the Ramazzini Foundation conduct any research for NTP?
A. I don't believe they did.
Q. During this period, did the Ramazzini Foundation conduct any research that was funded by the U.S. Government?
MS. GREENWALD: Objection, form.
A. They did get some funding from NIEHS or NTP, but, boy, I cannot for the life of me remember. I think they got some funding.
Q. Are you aware that the Collegium Ramazzini has announced that it will be conducting studies on glyphosate with respect to genotoxicity and oxidative stress?
A. Yes, I am aware of that.
Q. Are you involved in that research effort?
A. No.

Q. Have you had any conversations with the folks at Collegium Ramazzini about that research?
A. Yes.
Q. What has been the nature of your conversations?
A. Part of it they were asking me to join them and analyze their data at the end. I declined.
Part of it was just general questions about the science and what's already been done with glyphosate.
Q. And in your conversation with Collegium Ramazzini, did you disclose the fact that you were a paid consultant for plaintiffs' counsel in litigation against Monsanto?
A. It is the Ramazzini Institute. They are different entities.
But yes, I did disclose to them.
Q. Is that the reason that you decided not to participate in their scientific evaluation?
A. Partly. There are other reasons.
Q. What were the other reasons?

A. I'm busy. I'm retired. They wanted me to come down to Bologna and give a talk and other things and I just wasn't interested.
Q. Dr. Portier, you have stated that you do not believe that causality between glyphosate formulations and NHL has been demonstrated, correct?
MS. GREENWALD: Objection, form.
A. What I believe is written in the expert report.
Q. Well, let me just ask this question: It is true that you do not believe that causality between glyphosate formulations and NHL have been demonstrated, correct?
MS. GREENWALD: Objection, form.
A. Causality is an interesting -- it's a spectrum, but if you're using causality to mean 100 percent, absolutely certain, then I would have concern. But my conclusion is it probably causes NHL.
Q. Let's take a look next in line. This is Exhibit 15-20. It is already marked. So it's one of the exhibits in

there.
A. 15-20? Oh, boy. I'm not good at keeping things in order here.
Q. This is your submission to EPA in October of 2016, correct?
A. Yeah, it looks like that.
Q. And then on page 7, about two-thirds down the page, you're talking about whether there is an association between glyphosate exposure and the risk of non-Hodgkins lymphoma.
Do you see that, and that's what starts the summary?
A. Start with "Summary," and how far do you want me to read?
Q. First of all, I'm asking if you see that section, which you obviously do.
The end of that paragraph, you state, with regard to glyphosate in NHL, "So is causality plausible here? Yes, absolutely. Is it demonstrated? No, clearly not."
That was your statement, correct?
A. If you could wait.
This is strictly discussing the

epidemiology data, and the question was whether the epidemiology data, by itself, demonstrates causality, and the answer to the question is no.
Q. And that is your opinion, correct?
MS. GREENWALD: Objection, form.
A. That is only for the epidemiology data, and for the epidemiology data to exhibit clear causality, it would have had to be sufficient instead of limited in the IARC review.
I still believe it's limited and not sufficient by itself to demonstrate causality.
Q. OK, fair enough.
You are a proponent of a principle called the "precautionary principle," correct?
MS. GREENWALD: Objection to form.
A. I have been in debates with others on the precautionary principle where I've had to choose one side or the other.
But I'm not a proponent and I

don't hate it. I'm not clear on what it is in the way it is applied.
Q. Well, let me ask you this -- well, first of all, you were a member of a group called "Critical Scientists Switzerland," correct?
A. Yes, I am.
Q. And one of the goals of Critical Scientists Switzerland is promoting the precautionary principle, correct?
A. I suppose it is, yes.
Q. And in your assessment of glyphosate, you have talked about public protective decisions, correct?
MS. GREENWALD: Objection, form.
A. I have no idea -- I certainly do talk about public protective science -- use of science to protect the public.
Q. And in respect specifically to the glyphosate, and, for example, in your submissions to EPA, you have called upon them to apply this public protective approach in their assessment of the glyphosate science, correct?
MS. GREENWALD: Objection, form.

A. I don't recall that. You would have to show me. I'm sorry.
Q. So we are still on Exhibit 20. And if we could look at page 11.
And here you're talking about your comment on the rat studies, correct?
A. That's what it says, yes.
Q. And then the bottom of the page, the second paragraph on the bottom, the last line, you state that the public protective decision in this case should be to conclude these tumors arose as a function of exposure to glyphosate, correct?
A. It's the purpose of EPA to protect the public and they have to make that decision, and in this case, they should have included these tumors as a function of exposure to glyphosate, yes.
Q. Again, in your discussion with EPA, you're calling upon them to apply this protective approach in their assessment of glyphosate, correct?
MS. GREENWALD: Objection to form.

A. I'm calling them to conclude these tumors arose as a function of exposure to glyphosate.
Q. Based upon the fact that EPA is a --
A. Public health agency.
Q. And should therefore be applying a public protective methodology, or a methodology that is protective of the public in making its assessments about carcinogenicity, correct?
MS. GREENWALD: Objection to form.
A. It's a long question but I will -- I think you were reading way more into this sentence than really is there.
They are a public health agency. It's their job to protect the public. The correct decision here, the public-protected decision, should be to conclude these tumors arose as a function of exposure to glyphosate.
Q. And your understanding, when there is -- if there is uncertainty in the data but there is data that is suggestive,

for a regulator buying -- making a public-protective decision, they should lean in favor of binding an association, is that fair to say?
MS. GREENWALD: Objection to form.
A. No, I don't -- I don't believe that is a general rule I would hold.
Having been a regulator myself, it's -- there are many facets to making a decision. And you worry about public health but decisions are complicated.
Q. With respect to carcinogenicity, you have also stated your belief that it is glyphosate and not the surfactants in the formulated products that are causing the effects, correct?
MS. GREENWALD: Objection to form.
A. I can tell you what I believe.
I believe that glyphosate has an effect, and I believe the surfactants also have an effect, but the effect seen in human epidemiology is clearly partly due to glyphosate.

Q. You have also stated your belief, with respect to carcinogenicity, that it is glyphosate and not the surfactants in the formulated products that are causing the effects, correct?

MS. GREENWALD: Objection, form and asked and answered.

A. There is a lot of evidence here. So you have to break it down for me by the type of evidence you want me to discuss.

Q. We are going to provide you with -- do you recall being interviewed during one of the times that you went to Europe to talk about the European Food Safety Authority's assessment of glyphosate?

A. I've been interviewed dozens of times.

Q. During the break we will ask you to listen to one of those interviews.

MS. GREENWALD: Counsel, it has to be on the record. I'm not going to have him look at something on a break.

That's not the way it works in this litigation. You guys have done it

against us --

MR. LASKER: Well, we have had our people review things during the breaks so they could answer questions after the break.

MS. GREENWALD: Well, that's your choice.

We have also had depositions where we have taken a couple-minute break and then your counsel holds it against our time.

So if you want him to do it, we will do it on the record during your own time.

MR. LASKER: We will get that keyed up in a moment then.

Q. In presenting your opinions in your expert report, you have presented them in the context of the Bradford Hill criteria, correct?

A. Yes.

Q. And the question that a scientist must answer under the Bradford Hill criteria in deciding whether one can reach a causation opinion is "Is there any other

way of explaining the set of facts before us," correct?

MS. GREENWALD: Objection, form.

A. It's a paraphrase probably, or something along those lines, but yes.

Q. You agree that this is the appropriate methodology to be followed in reaching a causation opinion with respect to glyphosate or glyphosate formulations and non-Hodgkins lymphoma, correct?

MS. GREENWALD: Objection to form.

A. The Bradford Hill criteria with modifications have been accepted by many authorities as the way to approach a causality argument.

Q. My question was about you though. Do you agree that the appropriate methodology to be followed in reaching a causation opinion with respect to glyphosate is the Bradford Hill criteria including the question is there any other way of explaining the set of facts before us?

MS. GREENWALD: Objection, form,

asked and answered.

A. I think that quote is in my expert report. And the approach I took in the expert report, I believe, is the correct approach for glyphosate.

Q. You still didn't answer my question.

Do you believe the correct approach, correct methodology in reaching a causation opinion with respect to glyphosate or glyphosate formulations and NHL is to ask the question is there any other way of explaining the set of facts before us?

MS. GREENWALD: Same objection, form, and asked and answered.

A. I believe that the approach I use is the correct approach. That's my answer.

That question is too simple. The approach is much more complicated. Bradford Hill was just using it as a means for people to understand the concept of what he was trying to get through, but this is -- the whole criteria is very complicated and much greater than that one

Page 150

sentence.
Q. So in conducting your assessment of the glyphosate science, has it been your methodology to look to see whether there is any other way of explaining the set of facts before us?
MS. GREENWALD: Objection, form.
A. It's -- part of the Bradford Hill criteria is -- the philosophy of Bradford Hill is that question.
I didn't ask that question specifically on every single piece of evidence I looked at.
Q. Did you ask that question with respect to the glyphosate science as a whole?
MS. GREENWALD: Objection to form.
A. Glyphosate --
Q. Science as a whole --
MS. GREENWALD: Objection.
Q. -- with respect to carcinogenicity.
A. As a whole?
MS. GREENWALD: Same objection.

Page 151

A. Yes.
Q. Dr. Portier, I would like to ask you about -- let's go back to the question of the interview that you've had, and we will play for you -- this is a televised interview that you had in Europe.
MR. LASKER: And let's get this so the court reporter can hear it.
MS. GREENWALD: Do you have a transcript of it?
MR. LASKER: We have a thumb drive.
MS. GREENWALD: Do you have a transcript?
MR. LASKER: We don't have a transcript. We have a thumb drive.
A. My hearing is not great.
Q. Let's play the videotape.
That's you on the screen, right?

A. Looks like it.
MS. GREENWALD: And, Dr. Portier, if you can't hear it, we should stop it sooner than later.
MR. LASKER: It's pretty short.

Page 152

MS. GREENWALD: I don't want to play games here either. So let's see if you can hear it sufficiently, and all of us, actually, in the room.
(Videotape plays.)
MS. GREENWALD: I can't hear it. So you have to start it over.
MR. LASKER: Let's do this after the break.
MS. GREENWALD: We would also like some authentication that this is actually an accurate -- if you could give us the link and we can look at it, we'd just have some confirmation of what it is.
MR. LASKER: We can do that off the record, and then we will put it on the record, too. That's fine.
Q. Dr. Portier, when did you first reach your conclusion that glyphosate probably causes non-Hodgkins lymphoma in humans?
A. When did I first reach that conclusion?
Well, I agreed with the IARC

Page 153

monograph conclusion. So I guess it was at the end of the IARC monograph.
Q. And then do you recall when you first reviewed the data tables for the various animal cancer bioassays that you discuss in your report that were provided with the Greim arbitration?
A. Not really. I can't say exactly when I reviewed those supplemental tables.
Q. Was it before or after the date that you submitted the open letter to the European regulators in November of 2015?
A. I think it was probably after that.
Q. Was it before or after the date that you submitted your evaluations or you submitted -- provided submissions to EPA in October of 2016?
A. I can't be certain.
Q. In your expert report, you address the animal cancer bioassays under the Bradford Hill criteria biological plausibility, correct?
MS. GREENWALD: Objection to form.

A. I address it there and in two other places, correct.
Q. And you agree that animal cancer bioassays are intended to test whether glyphosate can cause cancer in mammals, thus supporting the concept that chemicals -- let me strike that.
It is your opinion as set forth in your expert report that animal cancer bioassays are intended to test whether glyphosate can cause cancer in mammals, thus supporting the concept that the chemical could cause cancer in humans, correct?
MS. GREENWALD: Objection to form.
A. That is part of what I believe from animal cancer studies.
There is a second part to that because they can be, under certain conditions, tumor specific for humans.
Q. You would agree that an evaluation of human health risks, sound human data, whenever available, are preferred to animal data, correct?

MS. GREENWALD: Objection, form.
A. In any endeavor, looking at mammalian health, the target population, doing everything you can in the target population that you -- things I can do in the target population are important and should be considered. Things that I can't do in the target populations, I will use other scientific models to look at.
As a general rule, if I have the exact same study and one is in humans and one is in rodents, I'm going to take the human one as more important.
Q. And I think it is consistent with what you just said, animal and in vitro studies are particularly important for you to supply evidence missing from human studies, is that fair?
MS. GREENWALD: Objection, form.
A. In vitro?
Q. Well, let's go with just animal studies.
MS. GREENWALD: Same objection.
Q. Animal studies might provide support for an assessment, but they are

mainly used to supply evidence missing from human studies, correct?
MS. GREENWALD: Objection, form.
A. No.
(Exhibit 15-28, document entitled, "Principles for modeling dose-response for risk assessment of chemicals," marked for identification, as of this date.)
A. I didn't think anybody ever read that document.
Q. One thing that came out of this, right?
A. That's amazing.
Q. So 15-28, this is a report of a committee that you chaired on principles for modeling dose-response for the risk assessment of chemicals, correct?
A. Did I chair it?
Q. Or maybe you served on this committee. I don't remember who chaired, frankly.
A. I don't know either.
Q. You worked on this committee, correct?

A. I worked on this committee that produced this report. That is correct.
Q. And on the beginning of this report -- and I recognize it is a long report, but on page Roman X at the beginning, it is sort of the summary section --
A. Where?
Q. It's Roman X.
A. Yes.
Q. And the final paragraph on that page states:
"In the evaluation of human health risks, sound human data whenever available are preferred to animal data. Animal and in vitro studies provide support and are used mainly to supply evidence missing from human studies."
Do you agree with that?
A. No. I realize I was on the committee but I don't agree with the statement.
Q. There is also a statement in this report at page 31, which is normal 31, not Roman. This is the end of the second full

paragraph under 4.6, the last sentence:
"For dose response analyses based upon laboratory data using animals, there is an additional problem of extrapolating from animals to humans."
Do you agree with that statement?
MS. GREENWALD: Objection, form.
A. This has to do with calculating risk --
Q. And do you agree --
A. -- and in the context of calculating risk, that statement is correct.
Q. And page 34, Section 5.1 is a statement:
"It has always been a challenge to extrapolate from effects observed in experimental animal bioassays to potential effects in humans in order to protect humans from potentially harmful chemical exposures."
Do you agree with that statement?
A. I'm trying to find it.
Q. 5.1, the first paragraph.
A. OK.

Again, this has to do with risk, not hazard. And in the context of risk, not hazard, this is indeed a true statement.
Q. There are certain mechanisms of action with respect to rodent carcinogenicity that do not apply to humans, correct?
MS. GREENWALD: Objection, form.
A. There have been -- the mechanisms apply to humans. The components of the mechanism don't exist in humans.
So there are cases where chemicals have caused cancer in rodents and the mechanism by which they do it does not work in humans.
Q. And there are differences between rodents and humans -- strike that.
These differences between rodents and humans can vary from one type of cancer to another --
MS. GREENWALD: Objection to form.
Q. -- is that fair to say?
MS. GREENWALD: Objection form.

A. As far as I know, there are only three cases of how this happens, so I -- it -- in the three cases, there are different mechanisms.
Q. There are differences in mechanisms of action between rats and mice, and between different strains of mice and rats, that will impact whether or not a chemical could cause cancer in that animal, correct?
A. There are mechanisms which could impact the degree to which the chemical causes cancer in the animal. Metabolism could cause differences. Many things.
Q. And scientists actually use different animal models to try and support the concept that exposure to a chemical can be linked to a specific type of cancer in humans, correct?
MS. GREENWALD: Objection to form.
A. Cancer -- there is numerous models that are used to assess the carcinogenic potential of chemicals in mammals.

Q. And different animal models will be used for different types of cancer, correct?
A. I don't really know that that statement is true.
Which -- different types of cancer in humans? Or different types of cancer in the animals you're going to do the study in?
I don't know the context of your question.
Q. Let's do it either way.
There are animal models that are used to assess whether a substance can cause a specific type of cancer in rodents, correct?
A. Yes.
Q. And there are different rodent models that are used to try and make an assessment as to whether or not an exposure can cause a certain type of cancer in humans, correct?
MS. GREENWALD: Objection, form.
A. Not that I'm aware of as a general screening tool.

Q. OK. Moving -- so moving away from a general screening tool -- let me just back up.

So the cancer bioassays that we are going to be discussing and you discuss in your report are general screening bioassays, correct?

A. That is correct with the exception of one of them.

Q. And there are then other animal models that are used subsequent to a screening study that will focus on potentially specific types of cancer, correct?

MS. GREENWALD: Objection, form.

A. You are talking about in rodents?

Q. Yes.

A. After exposure to the chemical?

So let me see if I am -- I am going to talk a little bit so I can get this straight in my head. Excuse me.

So the chemical gets done in a screening and an animal in the screening gets the tumor. Why would a scientist move from the, let's say, Wistar rat I saw a

tumor in to a different animal when I'm already getting tumors in the Wistar rats?

In answer to the question, I don't think there are that many cases where they switched off for a specific reason for a specific tumor.

Q. In your expert report, you cite to a number of articles regarding the current state of play with respect to identifying rodent models that could be used to analyze the possibility of NHL in humans, correct?

MS. GREENWALD: Objection to form.

A. I see what your question is about. Now, that's the difference. OK.

The rodent models for NHL are developed to get therapies for NHL for humans. They are not developed for the purpose of identifying tumors that arise in humans from exposure to chemicals.

They induce the NHL in the animal and then try to fix it.

Q. So with respect to mice, you cite to a 2009 book chapter by Herbert Morse

called "Mice models of human B lymphoid neoplasm," correct?

A. I believe I do. Yes.

(Exhibit 15-29, article entitled, "Mouse models of human B lymphoid neoplasms," marked for identification, as of this date.)

Q. In this book chapter, specifically at page 3 -- and this will be on the left column at the end of the column -- Dr. Morse states that species-specific differences in the immune system and molecular circuitry required for transformation make it difficult to model NHL in mice, correct?

MS. GREENWALD: Objection, form.

A. This is the last paragraph --

MS. GREENWALD: I can find it for you.

Q. End of the --

MS. GREENWALD: I found it. It's right here.

A. "Could thus make it difficult to model some human diseases in mice."

He is talking about genetically

modified mice here, yes.

Q. And Dr. Morse, if you turn to page 2 and then carry over to page 3, one of the issues that Dr. Morse notes is that the murine leukemia virus can cause lymphomas in mice through a mechanism that has no direct parallel to NHL in humans, correct?

MS. GREENWALD: Objection, form.

A. Everything he has written here is correct.

Q. So there are -- just to be clear, so I'm clear, the murine leukemia virus can cause lymphomas in mice through a mechanism that has no direct parallels to NHL in humans, correct?

MS. GREENWALD: Objection, form.

A. It's -- there is a parallel in humans. It just doesn't happen with that virus in humans.

Q. So what Dr. Morse says is these contributions to disease pathogenesis -- that's the cause of disease in the mouse -- have no direct parallels in human B lymphomas, correct?

MS. GREENWALD: Objection to form.
A. He is talking specifically about the murine leukemia virus, but the mechanism by which the murine leukemia virus causes NHL in -- causes these B lymphomas in the mice exist in humans. It's just not activated by this particular pathogen.
Q. Dr. Morse also notes -- and this is the first full paragraph on that left column on page 3, starting "Second," that there are significant differences between mouse and human immune systems in their development, structure, phenotype and function?
A. Correct.
Q. And this is significant because NHL in humans has been associated with immune system disorders, correct?
MS. GREENWALD: Objection, form.
A. I'm not absolutely certain.
Q. Are you not aware of an association between HIV and non-Hodgkins lymphoma?

A. Yes, I am.
Q. So it is correct that HIV in humans has been associated with immune system disorders, correct?
MS. GREENWALD: Objection, form.
A. It is true that NHL in humans -- correct.
Q. And there are significant differences between mouse and humans' immune systems, correct?
MS. GREENWALD: Objection to form.
A. There are differences between mouse and human immune systems, that is correct.
Q. And Dr. Morse further states, that same paragraph, that the spleen is the major secondary lymphoid organ in the mouse, whereas lymph nodes fill that niche in humans, correct?
A. That I don't know.
Q. You don't know one way or the other?
A. No. I'm sorry.
Q. And Dr. Morse also states in the

following paragraph, starting "Finally," that the genetic and epigenetic alterations required for neoplastic transformation sometimes differ for mouse and human, correct?
A. They do sometimes differ, yes.
Q. So when we are talking about alterations, we are talking about genetic changes that are required for cancer to form, correct?
A. Are you talking about epigenetic and genetic?
Q. Right. So these are genetic and epigenetic changes that are required for cancer to occur, correct?
MS. GREENWALD: Objection to form.
A. I'm not certain what he is saying here because neoplastic transformation can mean transformation of a carcinoma into a metastatic tumor, it could mean transformation from an adenoma to carcinoma.
So I'm not exactly certain what he is talking about here, but there are

genetic and epigenetic alterations that are required for both of those processes, and sometimes they differ for mice and humans.
Q. And it is also genetic and epigenetic alterations that would be required for a normal cell to be mutated that would sometimes differ from mouse and human, correct?
MS. GREENWALD: Objection to form.
A. Sometimes differ, yes, correct.
Q. And now Dr. Morse states in this paper that you cite in your report that the best-studied mouse strains -- and this is on page 2 -- for potential use as models for human B-cell lymphomas are the NFS.V congenic mice and the AX -- I'm sorry -- AKXD recombinant inbred strains, correct?
MR. LASKER: On the phone, can you put your phone on mute?
Thank you.
Q. I will state that again.
On page 2, Dr. Morse states that the best-studied mouse strains for potential uses --

MS. GREENWALD: Hey, guys, if you're not going to go on mute, we're going to have to disconnect the line.

Q. OK, we'll try that one more time.

Dr. Morse states that the best-studied mouse strains for potential use as models for human B-cell lymphomas are the NFS.V plus congenic mice and AKXD recombinant inbred strains, correct?

MS. GREENWALD: Objection to form.

A. Technically, these are not strains. These are transgenic mouse models. They derive from certain strains. I don't know what strains they derive from.

But he says these two mouse entities or types are the best models. He would know.

Q. Now, none of the glyphosate studies that we are going to be talking about were conducted in either of these mice strains?

A. Again, you are mistaken with what this means.

Q. I'm not asking what it means.

A. No one would ever test in these strains because these congenic and transgenic mice all get NHL. You could never detect NHL or any type of tumor like that if you use these because these are not -- they have already been produced to induce the tumors.

Q. Can you cite to any -- again, this is a document that you cited in your expert report with respect to mouse models for non-Hodgkins lymphoma.

Can you cite to any publication that points to CD1 or Swiss Albino mice as appropriate mouse models for human non-Hodgkins lymphoma?

MS. GREENWALD: Objection, form.

A. For the production --

Q. Yes.

A. -- of lymphomas from exposure to a chemical?

Q. No. Can you cite to any source document, any published document, that suggests that CD1 or Swiss Albino mice are appropriate mouse models for assessing the potential for a substance to cause NHL in humans?

MS. GREENWALD: Objection, form.

A. No, probably not.

I -- I'm hesitating because the problem is OECD says these mice, CD1 mice, are good mice for studying chemicals for producing cancer. Hence, that document in essence is recommending if you are going to look for cancer, NHL is a cancer, then that's the right model.

That's why I am hesitating. That's not what he is talking about here, but that's why I was hesitating. Sorry.

Q. But specifically, can you cite to any publication that suggests that CD1 mice or Swiss Albino mice are appropriate mouse models for human non-Hodgkins lymphoma?

MS. GREENWALD: Objection, form and asked and answered.

A. I just answered that.

I can point to OECD and their guidance that this is an appropriate model for screening for cancer, and NHL is a cancer.

Q. Beyond the OEC document talking about cancers generally, can you point to any document that is talking about non-Hodgkins lymphoma in particular --

MS. GREENWALD: Objection --

Q. -- with respect to CD1 mice or Swiss Albino mice?

MS. GREENWALD: Objection to form. Asked and answered.

A. I can't cite a single publication for any cancer where a specific mouse model is proposed to evaluate a chemical effect to cause cancer because of the mouse model.

So the answer to your question is I cannot cite anything specific to those mouse models producing malignant lymphomas and being the best model around.

Q. Dr. Morse includes a chart in his chapter on page 2 that identifies potential parallel neoplasm or cancers in human and mice, correct?

A. Yes.

Q. Dr. Morse does not suggest that any tumors in mice other than certain B-cell lymphomas would have a potential relationship to the development of

non-Hodgkins lymphoma in humans, does it?
MS. GREENWALD: Objection to form.
A. Yeah, you've lost me. Sorry.
Q. Dr. Morse does not suggest that there are any types of tumors in mice other than certain B-cell lymphomas that have a parallel to NHL in humans?
MS. GREENWALD: Objection, form.
A. His article is about B-cell lymphomas. This table was all about B-cell lymphomas.
Q. Dr. Morse does not suggest, for example, that there is any relationship between venal tumors in mice and the development of NHL in humans, correct?
A. Renal tumors in mice? Is that what you were questioning me?
I didn't understand that at all.
Does he suggest that kidney tumors would -- kidney tumors in the mouse would predict or be directly related to this tumor in humans? No.
Q. And would you -- with respect to different types of tumors in different

organs, would you agree that evidence of renal tumors in a mouse would not be directly relevant to the development of non-Hodgkins lymphomas in humans, correct?
MS. GREENWALD: Objection to form.
A. I'm not sure.
We did a paper on this, and I thought it came out recently, but I can't -- I can't tell.
And we looked at whether this tumor in this mouse seems to associate with this tumor and this human. And I don't remember if that particular case popped out or not.
So I can't answer the question very well. Sorry.
Q. So if I understand correctly, you have done an assessment of certain tumor types in mice to determine whether or not they are predictive of certain tumor types in humans?
MS. GREENWALD: Objection to form.
A. We have done a paper that looks

at all of the known human carcinogens from the IARC list, 101 chemicals minus -- I think it is about 86, 85 chemicals.
So these are chemicals that we know they cause cancer in humans and we know where they cause cancer in humans, so each of them had cancer bioassays also done -- well, some of them didn't, so we had to throw those out.
But most of them had cancer bioassays and so we could see what cancers arose in animals, what cancers arose in humans, and we could just look at the frequency of agreement.
Q. Are you aware of any published article that conducts an analysis to test whether the development of renal tumors in mice is predictive of NHL in humans?
MS. GREENWALD: Objection to form.
A. Um, no.
THE VIDEOGRAPHER: I'm approaching the end of the videotape.
MR. LASKER: We will take a break.

THE VIDEOGRAPHER: The time is 12:32 p.m. We are off the record.
(Luncheon recess)

AFTERNOON SESSION
1:20 p.m.
THE VIDEOGRAPHER: The time is 1:20 p.m. We are on the record.
BY MR. LASKER:
Q. Good afternoon, Dr. Portier.
A. I hope you enjoyed your lunch.
Q. Wonderful.
Before the break, we were discussing when you first looked at the data tables for the animal cancer bioassays that were provided with the Greim publication.
Would I be correct in my understanding that you would have reviewed those data tables prior to your submission to EPA in which you presented a pooled analysis of the data from those animal studies?
MS. GREENWALD: Objection, form.
A. If I remember correctly, all of the pooled analysis in the data I submitted to EPA were the mouse lymphomas and the hemangiosarcomas and the kidney tumors and

the answer to your question is no, I'd probably not reviewed it before then because all those came from EFSA review.
Q. When you, in your pooling of data with respect to -- let's actually show him the October 4, 2016. It has already been marked.
It is 15-20, you can look at 15-20.
MS. GREENWALD: They are not all here.
THE WITNESS: It's the bottom one because I reordered them just now.
A. Yes, OK. Let's see what pooled analyses I did. OK, so EPA's -- I did not pool the rat studies here.
Q. So is it your recollection then that you would have first reviewed or if we were trying to get to the day where you first reviewed the Greim supplement, it would be at the time that you had pooled analysis for some of the rat studies?
A. That's when I seriously got into looking at Greim's very carefully because in order to do the pooling in any of these

studies, I have to pull in nonsignificant findings from the other studies and none of the regulatory agencies provide nonsignificant findings.
So when I decided to pool the rat studies, that's when I really had to dig in there.
Q. I don't know if we have three copies of this now.
MR. LASKER: Let's go off the record for a minute.
THE VIDEOGRAPHER: The time is 1:25 p.m. We are off the record.
(Recess)
THE VIDEOGRAPHER: The time is 1:27 p.m. We are on the record.
Q. Dr. Portier, you note in your expert report that because of the large number of evaluations that have been done -- the large number of glyphosate rodent studies that have been done, that raises a concern that false positives could be exaggerated, correct?
A. Let me break down your sentence for a second. Exaggerated I think is the

wrong term.
Q. Why don't we mark the revised report. This is next in line.
(Exhibit 15-30, expert report of Christopher J. Portier marked for identification, as of this date.)
Q. Just for the record, Dr. Portier, Exhibit 15-30 is your revised expert report that was provided to us on or about June 27, 2017, and on page 50 of your report, that second paragraph, midway through, you state, "Because of the large number of evaluations done in an individual animal carcinogenicity study, there is concern that the false positive rates could be exaggerated." Correct?
A. That's what I said. Surprised I used exaggerated.
Q. Well, the point, in any event, that you're making there is that if 20 evaluations are done and a finding is deemed significant at a p-value of less than .05, then you would expect that one of those evaluations would report out as being positive simply due to chance, correct?

MS. GREENWALD: Objection, form.
A. That's what I wrote and that is correct.
Q. So a false positive then is when an individual test or trend meets the p less than .05 standard, but it is, in fact, due to chance rather than a carcinogenicity effect of a tested compound, correct?
A. A false positive is when there is no effect and you falsely declare it's positive either by statistical evaluation or whatever. That would be a false positive.
Q. And the point you're making here and, in particular, you state, for example, that there were -- on page 50, you list 329 total sites for rats and 16.5 that would be expected. Do you see that?
A. That is correct.
Q. And that again, that is the same point you're making that you would expect 1 out of 20 of those tests to report with a p less than .05 simply due to chance, correct?

A. Correct.
Q. And the reason that complicates the analysis of the glyphosate data is because there are so many evaluations that have been conducted in the animal studies, correct?
MS. GREENWALD: Objection to form.
A. The problem of false positives affects every study. But where you have, for example, with glyphosate, hundreds of analyses that can be conducted, you're going to be expecting to have a number of findings p less than .05 simply due to chance, correct.
MS. GREENWALD: Objection to form.
A. "Expectation" is the important word there. You expect to see it. That doesn't mean you necessarily saw it but you do expect it.
Q. So you're making the point here on page 50 is you have 329 total sites as you set forth on table 15 that could be examined or in the rat studies, and from

that, by chance alone, you would expect 16 or 17 to report out with a p less than .05, correct?
A. I'm -- that's correct. You know this table changed --
Q. I do understand that. I understand.
A. Thank you.
Q. You have further broken this down, down test by sex and by strain to look at what you would expect -- how many trends you would expect to see with ps less than .05 by chance and then comparing them to what you actually observe in the data, correct?
A. That is correct.
Q. And let's pull out your rebuttal report. And we will mark this as 15-31.
(Exhibit 15-31, Rebuttal Report of Christopher J.Portier marked for identification, as of this date.)
Q. And I think this statement is the same in both your initial report and in your rebuttal report, but it appears at page 7 on your rebuttal report.

You are discussing the number of trends that you see in the data or that you report in the data as compared to the number of trends that you would expect simply by chance. Correct?
MS. GREENWALD: Objection, form.
A. At the bottom of page 7, I discussed the new modified table 15 which discusses what we were discussing earlier. Same table.
Q. And what you state with respect to the rats -- and I want to focus on that now -- is with the exception of male Sprague Dawley rats, the observed number of tumors are at or near the expected number for the different sex strain groups in mice, correct?
A. That's correct.
Q. For female Sprague Dawley rats, you observed the number of trends that would be expected due to chance, correct?
A. I believe so, yes.
Q. For male Wistar rats, you found or observed the number of trends p less

than .05 that you expect to see due to chance, correct?
A. That is correct.
Q. And for the male Wistar rats, likewise, you observe the number of trends of p less than .05 you would expect due to chance, correct?
A. That is correct.
Q. But you nonetheless opine, based upon your analysis, that the data shows that glyphosate causes hepatocellular adenomas and skin keratoacanthomas in male Wistar rats and it causes mammary gland adenomas and adenocarcinomas in female Wistar rats, correct?
MS. GREENWALD: Objection to form.
A. I don't know about opining, but I certainly discuss those tumors and come to a conclusion that they are probably caused by glyphosate.
Q. So your conclusion is that the tumors that you identified for Wistar rats that have trends less than .05, which is the same number you would expect due to

chance, is, in fact, evidence of causation, correct?
MS. GREENWALD: Objection to form.
A. In fact -- they are part of the evaluation of causation. The skin keratoacanthomas were also seen in the Sprague Dawley rats which is the reason I did not decide that they were just random chance and the mammary gland carcinomas and adenomas and carcinomas, because it's the same progression of tumor, there is greater evidence that it remains.
So a decision to argue for a positive finding is not just statistical. It's also tied to the actual biology.
Q. Well, Dr. Portier, that wasn't my question.
You observed the number p less than .05 trends for Wistar rats that would be expected due solely to chance, correct?
MS. GREENWALD: Objection, asked and answered.
A. I observed the same number as expectation.

Q. Due to chance?
A. Due to chance.
Q. But your opinion is, in fact, this is evidence that glyphosate caused those tumors in those rats, correct?
MS. GREENWALD: Objection, form.
A. What is "this"? What is "this is evidence"?
Q. The trends that you observed of p less than .0.5 for Wistar rats which are the same trends you would expect to see due to chance, in your opinion, is evidence that glyphosate caused those tumors in Wistar rats. Correct?
MS. GREENWALD: Objection, form.
A. It's part of the evidence. Yes.
Q. You reached your rat causation opinions through the application of a pooling methodology, correct?
A. Yes, I did.
Q. And you agreed that methods for combining analyses of multiple animal cancer bioassays are not available in the

scientific literature, correct?
MS. GREENWALD: Objection, form.
A. Say again.
Q. You agree that methods for the combined analysis of multiple animal cancer bioassays are not available to the scientific literature?
MS. GREENWALD: Same objection.
A. I believe I wrote that, but it is now incorrect.
Q. At the time that you drafted your revised expert report, it was your understanding that methods for the combined analysis of multiple animal cancer bioassays are not available in the scientific literature, correct?
A. That is correct.
Q. And because of that, you developed the pooling methodology that you used for the purposes of your glyphosate analysis, correct?
A. Oh, I can't take credit for developing it, no.

Q. Can you cite -- first of all, have you ever published a paper in which you used this pooling methodology that you use in this case?
A. I'd have to go back and look. The pooling methodology is simply taking information from multiple laboratories or multiple experiments and putting it together and doing one analysis, and I believe I have, using the same technology, taken data from multiple experiments and done the analysis.
So I can't take credit for it, nor can I say I never did it.
Q. Let me ask you again. Can you cite to my -- first of all, have you ever published a paper in which you use this pooling methodology?
MS. GREENWALD: Objection, asked and answered.
A. I think I have.
Q. Can you cite to which paper that is?
A. I would have to go look at the papers.

Q. Can you cite, sitting here today, to any published paper by any scientist using this pooling methodology in analyzing animal cancer bioassay data?
A. Yes.
Q. Which article?
A. The someone asked me to look -- so Mike Dourson is going to be the new assistant administrator for EPA and I was asked to look at some of his papers and he does it in two of his papers.
Q. Can you say the name again?
A. Mike Dourson, D-O-U-R-S-O-N.
Q. Let's take a look at how you applied the pooling methodology in this case.
Now, we already talked about the fact that you opine, based upon your pooling analysis, that glyphosate causes mammary gland tumors in female Wistar rats, correct?
A. Wistar rats, I think so, yes.
Q. We can look at your expert report at page 28. And this is 15-30. Starting at page -- 15-30, you're talking about the

Brammer study.
A. Yes.
Q. And then you have on the next page, 28 is Brammer, 30 is Suresh, and 31 is -- I'm sorry, it bounces around a little bit. 32 is Wood, correct?
A. Yes.
Q. Those are the three studies in Wistar rats, correct?
A. Yes.
Q. So in the Brammer study reported on page 28, there were more mammary tumors found in the female Wistar rats that were not treated with glyphosate than were found in any of the three treated groups individually, correct?
A. More mammary grand adenomas and carcinomas in the control group than the treated groups, yes.
Q. And then the second Wistar study is Suresh. That's reported in page 30 of your expert report, correct?
A. Yes.
Q. In that study, the data finds a statistically significant inverse trend or

negative trend for mammary tumors with increased doses of glyphosate, correct?
MS. GREENWALD: Objection, form.
A. I don't actually know. I just see the p trend. I don't know what the slope was.
Q. But the p-value, if you have a p-value of .970 for a positive trend, that translates also to a trend of .03 for a negative trend. That's the way the math works, right?
A. Probably. I would want to look at the statistic to be sure, but probably, yes.
Q. So with that understanding, the Suresh study found an inverse trend, a negative trend for mammary glands that would be significant to p equals .03, correct?
MS. GREENWALD: Objection, form.
A. I am not sure.
Q. The Suresh study found more mammary gland tumors in the controls than

in the highest dose group, correct?
A. That is correct.
Q. And if the p trend for mammary gland adenomas and carcinomas in Suresh is an inverse trend, p equals .03, that would mean that the incidence of mammary gland tumors in female Wistar rats decreased as the dose increased by a statistical measure, correct?
MS. GREENWALD: Objection, form.
A. Because of the high response in the control, yes, that's probably the case.
Q. The third study you have for Wistar rats is the Wood study and that is a study that found a -- you report a statistically positive trend increasing tumors for mammary gland tumors, correct?
A. For mammary gland adenocarcinomas and mammary gland adenocarcinomas and adenomas combined. Yes.
Q. So for the three Wistar rat studies for mammary tumors, we have one study, the first one study we looked at, by Brammer, where there were more tumors found

in the controls than in any of the treated groups.
We have a second study by Suresh that reported what appears to be a statistically significant negative trend, meaning less tumors, less mammary gland tumors as the dose increases. And we have a third study that shows an increased trend of more tumors with more dose. Correct?
MS. GREENWALD: Object to the form.
A. We have the Brammer study which is negative; the Suresh study which is negative; and the Wood study which is positive.
Q. Just to be clear again, the Suresh study appears to be statistically significant negative, correct?
A. Correct.
Q. Now, when you pooled these studies together, and you report that -- I think on page 33 -- when you pooled the three studies together, you did not find any increased risk of mammary tumors in female Wistar rats, correct?

A. OK, say the question again.
Q. When you pooled the three Wistar rat studies together, you did not find any increased risk of mammary tumors in female Wistar rats with treatment for glyphosate, correct?
A. Yes, I got a p-value well above .05.
Q. To reach your causation opinion -- and you did reach an opinion that glyphosate causes mammary tumors in Wistar female rats. We just talked about that. To reach that opinion, you removed Suresh from your pooling analysis, correct?
MS. GREENWALD: Objection to form.
A. First, I want to check the conclusion. So I'm very clear on what I said.
Q. On page 52, you state that glyphosate causes mammary gland adenomas and adenocarcinomas in female Wistar rats, right? That's your opinion in your expert report, correct, Dr. Portier?
A. Yes, yes. It should have said

limited. I'm sorry, that was a -- that was a mistake. That's in this paragraph on page 33.
Q. To reach your opinion to support the idea that there is a causation with mammary tumors in Wistar rats, you dropped the Suresh study from your pooling analysis completely, correct?
A. I did a sensitivity analysis in which I removed the one study that might have not matched the other two. And I did a separate pooling. That is correct.
Q. So by removing the statistically significant negative trend, decreasing tumors with increasing glyphosate use, in Suresh, you were able to pool the two other studies to opine that there was a positive trend for mammary tumors in Wistar rats with glyphosate, correct?
MS. GREENWALD: Objection to form.
A. When, with justification, I removed the Suresh study, I could see a significant finding; and, hence, I said there was limited support for that tumor.

Q. Well, you're stating that now.
A. No, it's right there.
Q. In your expert report?
A. Page 33.
Q. Page 52.
A. Page 33, "Given the mixed results for the pooling from this tumor, I conclude there is limited support for the notion that glyphosate can cause mammary gland adenomas and adenocarcinomas in Wistar rats."

I've already conceded that in the final conclusion I should have used the word "limited" for that tumor.

Q. If you had instead removed the Wood study from your analysis and pooled instead the Suresh study and the Brammer study, you would have reported a statistically significant protective effect of glyphosate against mammary tumors, wouldn't you have?

MS. GREENWALD: Objection, form.

A. That, I do not know.
Q. You didn't conduct that

sensitivity analysis?

A. I had no reason to believe the Wood study was different from the Animoto study, or whatever we are talking about. Wood and -- Wood and Animoto was the two I pooled, correct? Wood and Brammer, Wood and Brammer.

I had no reason to believe that Wood was different than Brammer. But I had reason to believe that Suresh was different than the other two.

Q. With respect to mammary tumors, what was your basis for concluding that Suresh was different than Wood and Brammer?

A. When a -- when a strain of animals shows any tumor, whether it's the adenocarcinomas or the liver tumors, at a rate which is incredibly different than the others, it suggests that the strains are not -- they are not exactly operating the same.

The hepatocellular adenomas and carcinomas in the Suresh data set -- I believe it was the hepatocellular adenomas and carcinomas were substantially larger in

the control population, substantially, than either of the other two studies. That raises a flag that suggests that those studies are not replicates of each other and one should be careful when combining them.

Q. In the mammary gland tumors, you had, in the Wood study, eight out of 51 with tumors in the high dose group and that is significantly different than what you found in the other two studies, in Suresh and Brammer, correct?

MS. GREENWALD: Objection, form.

A. There were different doses. That's -- they are not equivalent connections and I don't know if they were statistically significant or not. They were different. There is no doubt about it.

Q. You used a similar pooling methodology to reach your opinion that glyphosate causes hepatocellular adenomas in male Wistar rats, correct?

A. I believe I did.

Q. Neither the Suresh study or Wood study found any increased incidence of hepatocellular adenomas in male Wistar rats, correct?

A. OK, let's see here. I was looking at the wrong ones. The first paragraph under joint analysis.

Q. It might be easier to look at the tables, 28, 30 and 32. Neither the Suresh study nor the Wood study found any increased incidence in hepatocellular adenomas in male Wistar rats, correct?

A. No statistically significant increased incidence, that is correct.

Q. And when you pooled the results of the three Wistar rat studies, you likewise did not find a positive trend for hepatocellular adenomas, correct?

A. I'm trying to find where I did the pooling and talked about whether it is significant or not.

I didn't pool all three studies. I'm sorry, I didn't pool them here. I don't see an analysis of the pooled three studies because the hepatocellular adenomas

seen in the Suresh study were 48 percent in controls; whereas the other two studies, the hepatocellular adenomas were down in the 0 to 1 percent to 2 percent range. Hence, pooling all three of them would be a mistake from the start. So I never even bothered.

Q. You reach your causation opinion based on a pooling that dropped the Suresh study out of the analysis, correct?

MS. GREENWALD: Objection, form and asked and answered.

A. I didn't drop the Suresh -- I didn't drop the Suresh out of the analysis, I never put it in.

Q. And in your discussion of that analysis, or your reasoning there for not including or -- in your evaluation, the hepatocellular adenomas, you state that, to reject a finding based upon only one in three being positive is the same as rejecting a coin being fair if, in three flips of the coin, the result is one head and two tails, correct?

MS. GREENWALD: Objection,

form.

A. I do write that in here.

Q. And you -- so you state that to reject causation based upon the findings of one positive trend and two null findings for hepatocellular adenomas, then it is the same as rejecting a coin as being fair if in three flips of the coin, the result is one head and two tails, correct?

A. Yes. The rest of it says you can't -- it simply is not possible and there is a better way to address these findings.

Q. And your pooling methodology for the glyphosate animal studies then seeks to determine whether the data is sufficient to reject a finding of causation for glyphosate and cancer in rodents, correct?

A. No. The pooling is there to evaluate whether, for this tumor, having seen a positive in one or two studies, does that positive stay when you group it with all the rest of the studies that it should be appropriately grouped with.

Q. And the analogy you are talking

about is rejecting a coin being fair, correct?

MS. GREENWALD: Objection to the form.

A. No, the rejection of a coin being fair here is that it's impossible to do it with only three flips.

Q. Right.

A. It's not that I can't reject a coin being fair. Of course I can if I do a large enough sample size.

So it's the concept that you can't do this that is being brought up there.

Q. In scientific analyses, you start off with a null hypothesis and then you try to reject that hypothesis, correct? That's the scientific methodology?

A. Correct. Well, you don't try to reject the hypothesis. If the data pops that way, it rejects the hypothesis.

Q. So for a coin toss, is the null hypothesis that the coin is fair and you are trying to reject that, correct?

MS. GREENWALD: Objection,

form.

A. If that's your hypothesis, yes.

Q. For glyphosate and the animal studies, the null hypothesis is that glyphosate does not cause tumors, correct?

MS. GREENWALD: Some objection, form.

A. The null hypothesis is that it does not cause an increase in tumors, that is correct.

Q. And your assessment, though, is looking to see whether the data is sufficient to reject the possibility that glyphosate does cause tumors, correct?

MS. GREENWALD: Objection, form.

A. No, the test is to see whether the rejection of the null hypothesis from the one study is -- remains or is -- goes away when I pool the data.

Q. So you are pooling the data to see if you can support -- strike that.

So you are pooling the data of those two studies without the third study to see if you can then reject the finding

in the third study, is that correct?
MS. GREENWALD: Objection, form, asked and answered.
A. No.
Q. You also exclude the Suresh study from your pooling analysis to support your opinion in your rebuttal report that there is a suggestion that glyphosate causes pituitary tumors in -- strike that.
I want to get that right. Yes. At page 6 of your rebuttal report, you also exclude the Suresh study from your pooling analysis to support your opinion that there is a suggestion that glyphosate causes pituitary tumors in female Sprague Dawley rats, correct?
MS. GREENWALD: Objection to form.
A. I did not include -- I don't know if I did the three. I don't think I -- I'm -- yes, that is -- I believe that's correct.
Q. Now, you used that same pooling methodology to conclude that there was a statistically significant positive trend

for skin keratoacanthomas in male Wistar rats, correct? And that's initially your revised report at page 32.
A. Page 32?
Q. I'm sorry. Page 31.
A. That is correct.
Q. So for skin keratoacanthomas, pooling the Wood and Brammer studies alone did not result in a statistically significant positive trend for male Wistar rats, correct?
A. It resulted in a p-value for trend of 0.053 which was barely not statistically significant.
Q. So for your skin keratoacanthoma causation opinion, you did pool, include the Suresh study in your pooling analysis to come up with a statistically significant finding, correct?
MS. GREENWALD: Objection, form.
A. I believe I wasn't that marginal. Let me look at my summary.
Q. Page 35.
A. I've got you. I'm sorry, I'm

just checking my -- yes. That must be what I used in my table 8.
Q. So you dropped or did not include Suresh for your pooling methodology when it resulted in a finding of no increased trend for mammary glad or hepatocellular tumors, but then included Suresh in your pooling analysis to calculate a positive trend for skin keratoacanthomas, correct?
MS. GREENWALD: Objection to form.
A. No.
Q. Did you not include Suresh in your analysis for skin keratoacanthomas?
A. In all of them, maybe all of them except hepatocellular adenomas, I did analyses with Suresh included and without Suresh included. All of those analyses play a role in my decision about whether this is a real tumor finding or a chance tumor finding and how much support there is.
Q. And in your finding of a positive trend, as you reported in your final opinion, to find a positive trend for

mammary gland tumors and hepatocellular adenomas, you used a pooling only of the Wood and Brammer study, and to reach your opinion with respect to keratoacanthomas, you used a pooling of all three studies, correct?
MS. GREENWALD: Objection, form.
A. I used all of the analyses that it had done to that time.
Q. For mammary gland tumors and the hepatocellular adenomas, to find a statistically significant positive trend, you found that only when you pooled just the two studies, Brammer and Wood, correct?
A. As I mentioned before, I saw an almost statistically significant p equals p.053 in the combined analysis.
I do not characterize it as negative. I characterize that as almost significant.
Q. Just to be clear, we are talking about mammary gland tumors and hepatocellular adenomas. Is it your testimony now that you found an almost

significant trend with those two tumors when you combined the three studies? I think you are confusing it now for skin --

A. I am sorry, for skin keratoacanthomas.

Q. No, let me -- for mammary gland adenomas and hepatocellular adenomas -- I am sorry, for mammary gland tumors and for hepatocellular adenomas, you opined to a statistically significant increased trend by pooling just Wood and Brammer, correct?

MS. GREENWALD: Objection, form.

A. For mammary gland adenomas and adenocarcinomas combined.

Q. And hepatocellular adenomas for those two tumors, you reported a -- or you opined to a statistically significant increased trend by pooling Brammer and Wood and not including Suresh, correct?

MS. GREENWALD: Objection, form.

A. For those two tumors, I saw -- not for -- for hepatocellular adenomas, I did not pool the three. So I do not know

what the result of that pooling would be.

When I pooled the two, yes, I saw significant p-value. For that tumor.

Q. And for mammary gland tumors, when you pooled the three, you didn't see a statistically significant trend, but when you pooled the two, you did?

A. That is correct.

Q. And that was the basis for your opinion with respect to mammary gland tumors, correct?

MS. GREENWALD: Objection, form.

A. That's the basis for my opinion that there is limited support for the notion that glyphosate can cause mammary gland adenomas and adenocarcinomas in Wistar rats.

Q. And for skin keratoacanthomas, where you report a statistically significant trend on your table, that is based upon the pooling all three of the studies, correct, including Suresh?

A. As I said before, it's based upon everything that went on in that evaluation.

Q. All three of the studies were pooled to get that statistically significant trend, correct?

A. No. The statistically significant -- you're confusing my decision to say this is glyphosate-related with any given one test or not. If you look through here, you will see is that there are subtleties involved in this.

In this case, when pooled with the Suresh study, it was highly -- it was highly -- no, it was statistically significant for the keratoacanthomas, and when it was not pooled, it was almost statistically significant for the keratoacanthomas. Therefore, I decided that there is a -- there is fire here and there is probably something going on. And that's why I made the decision to say that it was causal.

Q. And you reported that trend as statistically significant in your tables, correct?

A. In the table 8, I put three dots for the triple. I should have put one.

Q. Let's look at your pooling methodology for Sprague Dawley rats in your rebuttal report and this is page 6.

You opine that the Sprague Dawley rat study suggests a potential for glyphosate to cause adrenal cortical tumors in female rats, correct? That's page 6.

MS. GREENWALD: Objection, form.

Q. Second paragraph, first full paragraph on page 6, returning to table 2.

A. So ask your question again, please.

Q. Through -- in your rebuttal report, you opine that the Sprague Dawley rat studies suggest a potential for glyphosate to cause adrenal cortical tumors in female rats, correct?

MS. GREENWALD: Objection, form.

A. That is correct.

Q. When you pooled the results for the four Sprague Dawley studies, your pooling methodology reported a statistically significant negative trend for glyphosate and adrenal cortical tumors,

correct?
A. That is, I believe, correct.
Q. So in other words, you found, by pooling the studies, that there was a decrease in the incidence of adrenal cortical tumors with an increased dose of glyphosate and that was statistically significant, correct?
A. No. What I found was that the -- because of the hypothesis rates of this tumor in Lankas, et al., 1981 and the lower rates in the others, you end up with a negative trend because of that high rate of tumors. And that's why you have the negative trend. I would never have called that pooled analysis a negative trend because it was clear to me that that pooled analysis was flawed.
Q. OK. But just to be clear, page 10 of your rebuttal expert report, you present the data the -- your pooled analyses for adrenal cortical carcinomas in female Sprague Dawley rats -- correct? Adrenal cortical carcinomas?
A. I'm sorry, I'm kind of slow, yes,

I present that, yes.
Q. In your original pooled analysis, you have a p of .-- 0.997 which translates to an inverse trend with a p of .003. That's statistically significant, correct?
A. For negative, it has a negative trend. That is correct.
Q. And despite the fact that your pooling analysis finds this statistically significant inverse trend with p equal to .003, your ultimate opinion is that these studies suggest a potential for glyphosate to cause adrenal cortical tumors, correct?
MS. GREENWALD: Objection, form.
A. I concluded that because the Lankas study is 26 months instead of 24 and because the tumor rates seen in that study far exceed the others, that it doesn't belong in that pooled analysis and I made my conclusion based upon pooling the other three studies.
Q. Well you talk about dropping the Lankas Sprague Dawley study. You used that same approach to reach an opinion with

respect to kidney adenomas in male rats. Correct?
MS. GREENWALD: Objection, form.
A. Again, the Lankas study was 26 months and the rest were 24. That is reason to exclude it.
Q. And, in fact, though, if you looked at the four Sprague Dawley rat studies and that would be on pages 26 to 27 of your expert report -- I am sorry.
A. Wistar rats. It starts on 24 -- anyway, OK.
Q. So for Lankas, we were going to talk about the kidney adenomas, you did not find increased instance of kidney adenomas with increased dose of glyphosate, correct?
A. That is correct.
Q. And then if we look at the Stout and Reucker study, the second Sprague Dawley study, it's a 24-month study you do not find an increased incidence of kidney adenomas with increased dose of glyphosate, correct?
A. That is correct.

Q. If you look at the Atkinson study which is the third study for kidney adenomas in male Sprague Dawley rats, you did not find an increased incidence of kidney adenomas with increased exposure to glyphosate, correct?
A. That is correct.
Q. So three of the four. And in fact, three of the four Sprague Dawley studies did not find any kidney adenomas whatsoever in either the middle or highest glyphosate dose groups tested, correct?
A. I'm looking for the fourth study. I'm sorry.
Q. The fourth study would be table --
A. Table 6, and I wanted to look at that.
That would be correct. Three of the four did not have, by themselves, a positive finding for this tumor.
Q. Well, my question was a little bit different. Three of the four Sprague Dawley studies did not find any kidney adenomas whatsoever in either the high dose

or middle dose glyphosate group, correct?
A. I believe that is correct. This is a very rare tumor.
Q. But using your methodology, you opined that that data proves that glyphosate caused kidney adenomas in male Sprague Dawley rats, correct?
A. I believe that's what I said and I believe that is the case, yes.
Q. So now you dropped Lankas from your analysis for adrenal cortical tumors and kidney adenomas, but you highlight the findings of Lankas with respect to other tumors that were seen in that study?
A. In the Lankas study. Other tumors that were seen in the Lankas study.
Q. Yes.
A. That is correct.
Q. So for example, with thyroid C-cell tumors in female rats and in testes interstitial tumors in male rats, those tumors were found in the Lankas study but not found in the other three studies, correct?
A. That is correct.

Q. And in your expert report, you state that Lankas might be informative on causation with respect to these tumor types because there was a 26-month study while the other three studies were for 24 months, correct?
A. That is correct.
Q. You also opine, in your expert report, that glyphosate causes thyroid C-cell tumors in male Sprague Dawley rats, correct? You can look at page 52 if you want.
A. Thank you.
Thyroid C-cell adenomas and carcinomas combined in male Sprague Dawley rats.
Q. So the answer is yes, you do opine that glyphosate causes thyroid C-cell tumors in male Sprague Dawley rats, correct?
MS. GREENWALD: Objection to form.
A. That's what it says, correct.
Q. Now, let me mark for you your initial expert report. We will make this

32.
(Exhibit 15-32, Original Expert Report of Dr. Christopher J. Portier marked for identification, as of this date.)
Q. So Exhibit 32 is the expert report you submitted in this case in May of 2017, correct?
I'll represent to you it was May 1, unless there is some disagreement there.
You revised this expert report in your July report, correct?
A. That is correct.
Q. Now, at page 53 of your May -- your first expert report. I'm sorry, not 53. 34, of your May 2017 expert report, you're talking about the findings for thyroid C-cell tumors, correct?
A. That is correct.
Q. And at that point in time, you didn't have data from the Lankas study, correct?
A. That is correct.
Q. And you concluded, based upon

your analysis of the three other studies, that there was -- the evidence is weak that glyphosate causes thyroid C-cell tumors in male Sprague Dawley rats. Correct?
A. That is correct.
Q. And if we go now to your revised expert report, that same page on Exhibit -- page 34 on your revised expert report, here you now have data from the Lankas study and you note that pooling all four studies yields a significant trend of p equals .041. Correct?
A. I have to find it. I'm sorry. That appears to be correct.
Q. So you're no longer saying that the evidence is weak, correct?
A. That is correct. But --
Q. And that is because you're now including the Lankas study --
MS. GREENWALD: He was finishing a sentence.
A. That is correct. But you are right, that is an error. This should remain weak. This is -- this is not my intention, I'm -- you have -- you're

correct.
Q. So you are now opining that you should not have included the Lankas study in this pooling analysis?
A. No, I should not have concluded that this was evidence -- that it should have been weak or limited evidence that glyphosate causes thyroid C-cell tumors. I should have put that in there.
Q. In your revised report, to reach a statistically significant finding for thyroid C-cell adenomas, you included the Lankas study in your pooling methodology, didn't you?
MS. GREENWALD: Objection to form.
A. I had done both since I did it in my previous one. But here, it seems I pooled all four. That is correct.
Q. You had pooled all three in your May report and, then to reach a statistically significant finding in your July report, you pool all four, correct?
MS. GREENWALD: Objection, form.

A. No, no.
Q. You didn't pool all four studies in your July expert report?
A. I did, but I didn't do it to achieve statistical significance.
Q. In your rebuttal report, you also discuss pooled analysis in Sprague Dawley rats for skin keratoacanthomas and basal cell tumors. I think this is based on page 6 of your report.
A. Which one are we looking at?
Q. I am sorry, your rebuttal expert report. So this is 15-31.
A. Page 6?
Q. Yes.
A. I -- OK, what are we looking at here.
Q. So you report that for skin keratoacanthomas, you are reporting a pooled finding of an increased trend for increased skin keratoacanthomas for Sprague Dawley rats, correct? On page 6 of your rebuttal report, on the bottom, the second paragraph from the end.
Page 6, second paragraph from the

bottom, pooling the remaining new findings in Sprague Dawley rats. Do you see that?
A. It seems that's what I did, that's correct.
Q. Which of the four Sprague Dawley rat studies did you pool for your positive -- reported positive reports in skin keratoacanthomas?
MS. GREENWALD: Objection to form.
A. It does not say.
Q. I know it does not say. That's why I am asking you.
A. I would have to go back.
Q. Basel cell tumors, you also report a pooled finding. Which of the four Sprague Dawley rat studies did you include in your pooling analysis for basal cell tumors?
A. Again, I don't know. I would have to go back and look.
Q. Basal cell tumors, those in mice are the sames basal cell tumors in humans? Is that a similar tumor?
A. It's -- it arises from the same

place.
Q. And basal cell tumors, as I know all too well, in humans are generally caused by exposure to sunlight, correct?
MS. GREENWALD: Objection to form.
A. Can I go back to your previous question about what was pooled and correct that?
Q. Sure.
A. Thank you. All four studies were pooled for that evaluation.
Q. Is that for both the evaluations?
A. What was the skin keratoacanthomas -- and what was the other one?
Q. Basal cell.
A. Actually -- I did both poolings. OK, like I did before, three and four.
Q. Where is your --
A. Table 2, page 10.
Q. OK. What is 3 and what's 4?
A. So Lankas, Ekemoto, Atkinson and Stout and Reucker is Sprague Dawley rats, the first big block that's pooling all

four. Oh, no, I didn't show the pooled three here, I'm sorry.
Q. You are looking Wistar rats I think?
A. I was looking at Wistar rats.
Q. Just so the record is clear --
A. I don't have anything here that says when I pooled -- just one minute.
I don't say here when I pooled only three instead of the four, so I can't answer the question.
Q. At least as reported in table 2, you are relying upon a pooling analysis of all four of the Sprague Dawley rat studies including Lankas for those two tumor types?
A. I can't answer the question.
Q. Fair enough.
A. I thought I could. Sorry.
Q. Basal cell tumors, those are caused primarily by exposure to the sun, correct?
MS. GREENWALD: Object to form.
A. I don't know. Skin cancers are -- certain skin cancers are caused

primarily by the sun, but I don't know if that is a basal cell -- is the same thing.
Q. Do you know of any evidence or can you cite to any publication that states that an oral ingestion, eating study, of any substance can result in a basal cell tumor? Can cause a basal cell tumor?
A. Probably. It's well known that rats and mice, after they eat, lick their skin, and so it's well known that you get some degree of absorption on the skin in these types of studies.
Q. So your sense then would be to the extent that there are skin tumors reported in these studies that might be attributed to the glyphosate, it would be because of rats licking their skin?
A. You couldn't rule it out. It could be either one and to give you an example, we saw an increase in skin tumors from oral ingestion of dioxin.
Q. And was that an oral gavage or a feeding study?
A. It was an unusual study. I just don't remember. It was probably an oral

gavage.
Q. That would be a liquid ingestion as opposed to a solid ingestion of the chemical?
A. Yes, and forced into the stomach of the animal so it would not be licking itself and putting it on the skin.
Q. With respect to this potential licking of the skin, you would not be able to actually determine what the dose was for any of the animals in these studies, correct?
MS. GREENWALD: Objection, form.
A. You could figure out with some degree of accuracy an estimate of how much was going on the skin from studies people have done in looking at the issue. Nobody has done that, but you probably could.
Q. But as of today, nobody has conducted the study that would allow you to determine what dose of glyphosate might have been licked on to the skin of these mice in the various treatment groups, correct?

A. That is correct.
Q. So you would not be able to come up with any trend based upon dose of glyphosate applied to the skin using these studies, correct?
A. No, that's not true. Almost certainly the dose to the skin is going to be concentration dependent because the animals will, on average, all do the same amount of grooming. And so as you double the dose, you're going to probably double the amount that gets on the skin. So I could do a trend test for that.
Q. Do you have any evidence of your review of the studies that looked at the grooming habits of these rats with respect to whether the grooming habits were the same across treatment groups?
A. There is no evidence either way in almost any study about grooming habits, it's not recorded.
Q. Let's turn to the mice, mouse studies, mice studies, mouse studies.
You used the same pooling methodology that you applied with the rat

studies in reaching your causation opinions in mice, correct?
A. Yes.
Q. In your rebuttal report -- again, if you look at page 7, you state that the observed findings of p less than .05 in Swiss Albino mice, both male and female, and female CD-1 mice would be consistent with what would be expected due solely to chance, correct?
A. I'm not sure where you are reading at.
Q. At the bottom of page 7 in your rebuttal report. Yeah.
A. Now, what's the question?
Q. So you state in your rebuttal expert report that the observed findings of p less than 0.05 trends in Swiss Albino mice, both male and female, and female CD-1 mice are consistent with what would be expected due solely to chance, correct?
MS. GREENWALD: Objection to form.
A. That's not what I said.
Q. You state that in female CD-1

mice and Swiss Albino mice, the expected and observed numbers are approximately equal, correct?
A. That is for the expected and observed number of p values less than 0.05, that is correct.
Q. Right. Just to be clear then, you state in your rebuttal expert report that the observed findings of p less than 0.05 trends in Swiss Albino mice and female CD-1 mice are consistent with what would be expected due solely to chance, correct?
MS. GREENWALD: Objection to form.
A. No, that's not what I wrote. I wrote what I wrote. It says they are approximately equal. That is all it says.
Q. So the number of observed trends that you saw in female CD-1 mice and in Swiss Albino mice are approximately equal to what you would expect to see due to chance, correct?
MS. GREENWALD: Objection, form, asked and answered.
A. I answered it.

Q. Is that correct?
MS. GREENWALD: Objection, same two objections.
A. I answered the question already.
Q. I am going to ask it again because I don't believe you did.
In female CD-1 mice and Swiss Albino mice, the number of trends you would expect to see due to chance and the number of trends you, in fact, did see are approximately equal, correct?
MS. GREENWALD: Objection, form.
A. That is correct.
Q. Now, based upon your pooling methodology, you opine that glyphosate causes a number of tumors in CD-1 mice, correct?
A. Due to the data I'm looking at, which includes the pooling analysis and the individual analysis and other things, I am convinced that a number of tumors in the CD-1 mouse are positive.
Q. So your causation opinion with respect to CD-1 mice is looking at four

studies, correct?
MS. GREENWALD: Objection, form.
Q. The four mouse studies?
MS. GREENWALD: Objection, form.
A. There are four mouse studies that were acceptable for use in the causation evaluation, that is correct.
Q. And two of the studies were 18 months in duration and two of them were 24 months in duration, correct?
A. That is correct.
Q. In your pooling analysis, you conduct pooling of the two 18-month studies and then you conduct pooling of the two 24-month studies and you also conduct pooling of all four studies combined?
MS. GREENWALD: Objection to form.
A. I don't know that I did all four studies combined all the time, but I probably pooled them all the time in all four as well.
Q. If your pooling methodology

reported a positive trend for tumor type in any one of those three pooled analyses, you ultimately opined that the glyphosate causes that type of tumor in CD-1 mice, correct?

MS. GREENWALD: Object to form.

A. No.

Q. Are there any tumor types that resulted in a positive trend in either the 18-month studies or 24-month study or the four studies combined that you do not opine was caused by glyphosate?

MS. GREENWALD: Objection, form.

A. You've lost me a little bit there. I would have to look. I'm sorry. I'd have to look carefully.

My guess would be, looking at it -- no, I'd have to look. I'm sorry, I can't guess.

Q. Now, in connection with -- strike that.

When you look at the 24-month study through your pooling methodology, you

did not find an increased trend for any type of tumor in CD-1 mice, correct?

A. I would have to look at it and make sure of that.

Q. So why don't we look at page 11 of your revised expert report.

A. OK.

Q. I am sorry, not your revised. Your rebuttal.

A. Rebuttal.

Q. We were on the same page physically and mentally.

A. So looking at the mouse studies here, none of them reached a level of statistical significance. That is correct. They -- one of them is marginally, two of them are marginally -- no. One, one is marginally significant.

Q. For example, for malignant lymphoma in male CD-1 mice, your pooling methodology reports a positive trend when the two 18-month studies were pooled, correct?

A. That is correct.

Q. There is no positive trend when

the two 24-month studies are pooled, correct?

A. That is correct.

Q. And there is no positive trend when all four studies are pooled, correct?

A. It's a marginal trend, but it's not statistically significant at the .05 level.

Q. And you opine through this analysis that the data establishes that glyphosate causes malignant lymphoma in male CD-1 mice, correct?

MS. GREENWALD: Objection to form.

A. My opinion is glyphosate causes malignant lymphoma in male CD-1 mice.

Q. When you applied your pooling methodology so the data on hemangiosarcomas in male CD-1 mice from the two 24-month studies, you likewise do not find an increased trend, correct?

A. It doesn't reach the level of statistical significance, that is correct.

Q. Now, in your expert report -- and this is at page, your initial expert

report, the revised one, 15-30, at page 48, you suggest another approach in analyzing those two studies for hemangiosarcomas and first I want to make sure that you are on page 48?

A. Yes, I am.

Q. The top for hemangiosarcomas in male and pooling the two 18-month studies and then pooling the two 24-month studies, correct?

A. That's correct.

Q. And you note, again, pooling the two 24-month studies did not result in a statistically significant increased trend for hemangiosarcomas, correct?

A. That is correct.

Q. Then you state if you were to remove the findings in the high dose group in one of the 24-month studies and then pool the two 24-month studies without the high dose group, then your pooling of the 24-month studies would be a statistically significant increased trend, correct?

A. I note that there is an aberrant result in the highest dose of the Knezevich

and Hogan study and I looked at the sensitivity of the pooled analysis to removal of that aberrant result.

Q. And now if you followed the same methodology and ignored the findings of hemangiosarcoma in the highest dose group of the highest dose group of the Atkinson study or the Wood study your pooling methodology would not have resulted in any trend for hemangiosarcomas in the 18-month study, correct?

MS. GREENWALD: Objection to form.

A. That's possibly true, yes.

Q. You also conducted -- you don't present that data though in your expert report?

A. This is a -- this is the pooling evaluation here. There is reason -- that's just simply an observation on my part. That is all it is. This is not used as part of my overall evaluation.

Q. It was important enough for you to put it in your expert report?

A. Because I did it.

Q. But you didn't do the same analysis removing the high dose group from either Atkinson or Wood studies, correct?

A. I saw no reason to do it.

Q. That would not have resulted in a positive trend, would it have?

MS. GREENWALD: Objection, form, asked and answered.

A. I do not know, but I saw no reason to do it.

Q. In fact, it would have removed a trend that you wanted to rely upon, wouldn't it?

MS. GREENWALD: Objection, asked and answered, form.

Q. You don't know?

A. I -- first, I don't know if it would remove the trend. Probably it would. But that's not the point here. The reason for pooling -- for looking at it here is the classic things you do. It's a sensitivity analysis to see how sensitive the findings are to what appears to be an aberrant result. That was all that was done here. And it seemed to be very

sensitive to that high dose point.

Q. You conducted a historical trend analysis for hemangiosarcomas in male mice in the Sugimoto study, correct? That's page 42 of your initial or July 2017 report, 15-30.

A. Yes, it starts on page 41. OK.

Q. So you calculated that while the concurrent control trend -- you calculated that while the concurrent control trend analysis for hemangiosarcomas in male mice in Sugimoto is not statistically significantly increased, you did find a significant increase in your historical trend analysis, correct?

A. For hemangiosarcomas, the trend test was marginally significant and historical control evaluation was significant.

Q. That p trend, that p hist. trend is listed as one of your statistically significant trends in your table 15, correct?

MS. GREENWALD: Objection, form.

A. Yes, that is correct.

Q. Now, hemangiosarcomas are one of those types of tumors that you have stated must be combined as systemic tumors, correct?

A. Yes, that is correct.

Q. So whether hemangiosarcomas in the liver or kidney or in the spleen, for the purposes of the trend analysis, they are all grouped together, correct?

A. No, they -- from what I understand, they group it slightly differently than that. I'm sorry. I have to go and try to figure it out myself, but I don't know exactly.

But they tend not to pool liver and kidney hemangiosarcomas with the other hemangiosarcomas, I think it has something to do with the origin of the cells for the hemangiosarcoma.

Q. So is it your understanding then, in reporting hemangiosarcomas, you would separately analyze, for trend analysis, liver and kidney -- I am sorry, which one did you say it was?

A. I think it is liver and kidney, but I would ask my pathologist first. I would trust him to tell me how to combine these things.
Q. For the Sugimoto study then, is it your understanding that the hemangiosarcomas that you found were not in the liver or kidney?
A. I don't honestly know. I -- I can't be absolutely certain. You asked me about systemic tumors and combining them. But in this case, I have no clue.
Q. So for the purposes of the historical trend analysis then for the Sugimoto study for hemangiosarcomas to find a historical incidence of hemangiosarcomas then, you would look at all the hemangiosarcomas in controlled animals in the historical database?
A. That you -- yes, you look at all the historical hemangiosarcomas in the historical controlled database, that is correct.
Q. Now, you note in your report that the historical control rate for

hemangiosarcomas based on Giknis and Clifford is zero out of 1424, correct?
Actually, you have two different numbers. Zero, 1424 on your footnote, and I think you have zero out of 1149 in your text. One of those two, right?
A. Yeah, it's one of those two. I'm sorry.
Q. The key point that you're making here is the fact that hemangiosarcomas was never seen in historical controls should strongly support any positive finding as in the Sugimoto study as being significant correct?
A. Biologically significant, that is correct.
Q. Let's take a look at the Giknis and Clifford report.
(Exhibit 15-33, report entitled, "Spontaneous Neoplastic Lesions in the Crl:CD1 Mouse" marked for identification, as of this date.)
Q. This is the source of your information on historical control for hemangiosarcomas, correct?

MS. GREENWALD: Objection to form.
A. This is the Giknis and Clifford paper that I referenced, yes.
Q. Let's take a look at table 5 on page 21 and 22. Actually, first of all, just to set the stage, on page 5 of this report they have a summary of the individual studies and information, correct? So this identifies the 18-month study and 24-month studies, correct?
A. That is correct.
Q. So studies 1 through 26, those are the 18-month studies, correct?
A. That -- yes, that is correct.
Q. And those are the -- that's the data set we would be looking at for this historical control?
A. I believe so, yes.
Q. If we looked at pages 21 and 22, this has the instance of neoplasm by study for selected organs in males, correct? So these are the male historical database? Historical controls?
A. That is correct.

Q. And you, in coming up with your statement that there were no hemangiosarcomas in these historical controls, you were looking at the whole body, multiple organ line, third from the bottom, correct?
A. That is correct.
Q. There is another line item for hemangiosarcomas in the liver, correct?
A. That is correct.
Q. And there were, in fact, 12 historical control animals in the 18-month studies with hemangiosarcomas in the liver, correct?
A. That is correct.
Q. And again, you don't know with Sugimoto whether the hemangiosarcomas were in the liver or other organs, correct?
MS. GREENWALD: Objection, form.
A. Typically it's whole body hemangiosarcomas, but I can't be certain exactly what they did.
Q. So for determining what the historical control instances of

Page 246

hemangiosarcomas, we should be looking -- including these 12 hemangiosarcomas in the liver, correct?

MS. GREENWALD: Objection, form.

A. No. I would not recommend that. The typical pathological approach is whole body hemangiosarcomas, and from my understanding, that is what we were analyzing.

Q. And you would not include liver hemangiosarcomas. Is that your understanding?

MS. GREENWALD: Objection, asked and answered.

A. That is my understanding, but the only way to verify that is if I have the individual animal pathology data.

Q. You don't have that for Sugimoto?

A. Is that a Monsanto study? No, I don't have it.

Q. Are there any other organs where hemangiosarcomas would not be included in the historical control rate?

A. You really have to ask that

Page 247

question of the pathologist.

Q. Let's look at table 3 in the Giknis and Clifford report. And specifically at page 12.

Now, this has data for all 46 of the studies, it doesn't break it out, but for the spleen, there are 28 hemangiosarcomas in these studies, correct?

A. That's what it says.

Q. Just to put this in context, page 9, they report the data for liver hemangiosarcomas, correct?

A. Yes, they do.

Q. So there were 29 hemangiosarcomas in the liver in the control animals in the 46 studies, correct?

A. That's what it says.

Q. And we know from table 5 that 12 of those were in the 18-month studies, correct?

A. Twelve of the 29 were in the 18-month studies, that is correct.

Q. And with the spleen, we know we have 29 hemangiosarcomas among all 46 studies, but we don't know how many of them

Page 248

were in the 12-month study -- I'm sorry, the 18-month study and how many were in the 24-month study, correct?

A. That is correct.

Q. Is it your -- to the extent that there were spleen hemangiosarcomas in 18-month historical controls, should that -- those hemangiosarcomas be included in your historical control incidence for Sugimoto?

MS. GREENWALD: Objection to form.

A. You would really have to ask a pathologist.

Q. So you don't know one way or the other?

A. I don't know one way or the other what Sugimoto did. All I know, he characterized it the way he characterized it.

Q. In the Giknis paper, Giknis and Clifford paper also reports on hemangiosarcomas in other tissues. It reports hemangiosarcomas in the testes, in the skin, in the pancreas, and in the lymph

Page 249

nodes. And if you want you can go through the page 11, 12, and 13, you will see listings of the other hemangiosarcomas.

To the extent that those hemangiosarcomas appeared in the 18-month studies, do you know if those should be included in your historical control rate for Sugimoto?

A. I can't know how many of those appeared in the 18-month studies from this document. So I can't -- I can't answer the question in reality.

Q. And so then would it be fair to say that you, without additional information that you do not have, cannot state what the appropriate historical control rate for hemangiosarcomas should be for the Sugimoto study?

MS. GREENWALD: Objection, form.

A. No, I can tell you what is characterized -- we can look up what OECD requires for this tumor, for this combination, if they require something for this combination, and that could be looked

at here assuming that Sugimoto followed OECD guidelines.

I don't -- I know he followed the OECD guidelines. I just haven't looked at the issue.

Q. Do you know if the hemangiosarcomas in Sugimoto were in the liver or spleen or testes or the pancreas or any other tissues where hemangiosarcomas were found in the control animals?

MS. GREENWALD: Objection, asked and answered.

A. The hemangiosarcomas were characterized as whole body hemangiosarcomas which is the same characterization in this document for a specific class of tumors.

Q. I asked a different question.

Do you know if the hemangiosarcomas in the Sugimoto study, the two hemangiosarcomas, do you know in what tissue of the animal they occurred?

MS. GREENWALD: Objection, form, asked and answered.

A. Again, they were characterized as

whole body hemangiosarcomas. I do not know what tissue they came in, but they fell in that general category.

Q. If they were in the liver --

A. They wouldn't be a whole body hemangiosarcoma.

Q. That's your understanding?

A. That's my understanding. Since Giknis and Clifford come from a contract lab that does these types of things all the time, I'm assuming that is a common classification for a category of tumors, multiorgan -- multiorgan hemangiosarcoma.

Q. You separately opine that glyphosate causes these hemangiomas in female CD-1 mice, correct?

MS. GREENWALD: Objection, form.

A. The data supports a finding of me hemangiomas in female whatever it was.

Q. CD-1 mice?

A. CD-1 mice. I'm sorry there is so many things here.

Q. Let's walk through the findings for this tumor type for the four CD-1 mouse studies. The first is Knezevich study,

page 38 of your report.

A. Page 38. Knezevich and Hogan.

Q. So now we are talking about hemangiomas in female CD-1 mice and the first question is for the Knezevich study, there was no finding of an increased trend in hemangiomas in female CD-1 mice, correct?

A. That's correct.

Q. In fact, the trend is above .5 so it actually leans in the negative direction, correct?

MS. GREENWALD: Objection to form.

A. Hard to say.

Q. The Atkinson study, and this is reported on page 39, likewise does not find evidence of an increased risk of hemangioma in female CD-1 mice, correct?

A. That is correct.

Q. The Wood study on page 41, likewise, does not find evidence of an increased trend in hemangiomas in female CD-1 mice, correct?

A. The Wood study, given the

historical controls, I would say it does show --

Q. On page 41?

A. I don't have -- you're right, you're right, my mistake. There is no significant trend here, positive trend. That is correct.

Q. So the one study in CD-1 mice that you find with an increased trend and what forms the basis of your pooled analysis finding is the Sugimoto study which you report on page 42, correct?

A. The Fujimoto study when --

Q. Sugimoto.

A. Sugimoto, when combined with the Wood, et al., study has a significant increase in hemangiomas combined. And then the Wood study itself is also significant for hemangiomas.

Q. You mean the Sugimoto?

A. Sugimoto, God. Sorry, long day.

Q. Three of the four CD-1 mice studies do not find any evidence of an increased risk of hemangiomas in CD-1 female mice, correct?

A. The 24-month studies have to be handled differently than the 18-month studies. So in the 18-month studies, you have one positive study and one study without a positive trend.

The study without the positive trend has a lower exposure and the highest exposure group. The study with the positive trend has higher doses.

When you combine them together with the doses and the responses, you maintain a significant response. That's what the data tells you.

Q. Dr. Portier, that was not my question.

There are four CD-1 mouse studies, correct?

A. There are four CD-1 mouse studies.

Q. The two 24-month studies do not report any positive trend with hemangiomas in female mice, correct?

A. That is correct.

Q. The Wood 18-month does not find any increased trend in hemangiomas in

female CD-1 mice, correct?

A. It -- it found some, but not an increase, that is correct.

Q. So the only CD-1 mouse study that found any increased trend of hemangiomas in female CD-1 mice was the Sugimoto study, right?

A. That is correct.

Q. And using -- if you had followed that same methodology that you followed in doing your sensitivity analysis for hemangiosarcomas and you knocked off the aberrant finding in that high dose group in one of the studies, you would not have found any increased trend for hemangiomas in any of the CD-1 mice studies, correct?

MS. GREENWALD: Objection, form.

A. If, individually, one study at a time, I had knocked this off, then this significant finding might go away probably. No, it would go away, it would not be there.

Q. So if you followed the same sensitivity analysis methodology that you

used for hemangiosarcomas, you could look at the hemangiomas and conclude there was no increased trend for hemangiomas, correct?

MS. GREENWALD: Objection to form.

A. That is not true.

Q. Did you do a sensitivity analysis knocking off the high dose group in Sugimoto the way that you knocked out the high group in Knezevich for hemangiosarcomas?

MS. GREENWALD: Objection to form.

A. I have done that analysis. For some of the presentations I had where the regulatory agencies were saying that the doses were too high. And I believe I have an example in there where there is -- well, this is hemangiomas, they didn't have them at the time. I haven't done the analysis, no.

Q. You opine that glyphosate causes kidney tumors in male CD-1 mice, correct?

A. I believe, yes. That is correct.

Q. Now, neither of the 24-month CD-1 mouse studies reports a statistically significant increased trend for kidney tumors in male CD-1 mice, correct?

A. OK, let's see. That would be tables 9 and 10. Kidney hemangiomas, kidney sarcomas, the 24-month studies?

Q. Yes, that would be Knezevich and Atkinson.

A. Knezevich using historical control test is significant.

Q. We are going to go to concurrent control. We will get to historical control in a second.

My question is with respect to statistically significant trends which would be p less than .05, neither of the 24-month CD-1 studies report a statistically significant increased trend for kidney tumors in male CD-1 mice, correct?

A. If significance is defined as 0.05, that is correct.

Q. In its monograph for working group 112, the IARC working group stated

Page 258

that the finding for Knezevich was statistically significant to the p equals .05 level, correct?
A. I'd have to look. I'm sorry.
Q. Do you recall that there was a calculation that was conducted using the approximate trend test?
A. That, I do recall. The decision was twofold, but yes.
Q. And the IARC monograph, the IARC working group, using the approximate trend test, reported that the findings for kidney tumors in Knezevich was statistically significant at p equals .05, correct?
A. For the trend test, yes, that is correct.
Q. Your analysis now is that the Knezevich study does not have a p less than 0.05 trend for kidney tumors, correct?
MS. GREENWALD: Objection, form. That's not his testimony.
A. It -- could you say it again? I don't know --
Q. Your expert analysis now is that the Knezevich study for renal tumors does

Page 259

not report a p less than .05 finding, correct?
MS. GREENWALD: Same objection.
A. The p-value is reported in that study from the exact test and that p-value is not less than 0.05. But I do report the p-value.
Q. Yes, I understand.
the -- you've been talking about the historical trend analysis for Knezevich, for renal tumors. Just mentioned that, correct?
A. Correct.
Q. And in your p hist. analysis for the Knezevich study, you again rely upon the data from that 2000 report by Giknis and Clifford, correct?
A. I would have to look.
Q. It's page 37 of your --
A. Give me a moment, please.
So 36 onward on to 37?
Q. Yes. We were talking about historical control data and you use Giknis and Clifford?

Page 260

A. That's not true.
Q. I'm sorry. Top of page 37, I am reading, "I will use the study by Giknis and Clifford 2000 since it best covers the range of studies we have for CD-1 mice, correct?
A. It says that. But before that, it says, "These studies have virtually identical rates for the important tumor seen in CD-1 mice," which refers to not one historical control but three.
Q. OK, but for the purposes of your historical trend analysis, for the Knezevich and Hogan study, for kidney adenomas and carcinomas, you used a historical rate from Giknis and Clifford, correct?
A. That is for kidneys?
Yes, that is correct.
Q. And you agree that in any analysis using historical controls, the data should be from studies in the same time frame, for the same animal strain, preferably from the same laboratory or same supplier, and preferably reviewed by the

Page 261

same pathologist, correct?
MS. GREENWALD: Objection, form.
A. If possible. And when possible, that would be assuming that the historical control data set is a valid and useful data set, that would probably be the best approach.
Q. You also agree that historical control data should be taken from studies that are of the same duration as the study in interest, correct?
A. Where possible, absolutely.
Q. And as a general matter, you would expect a higher incidence of tumors in historical controls as the duration of the study increases, correct?
A. On average, yes.
Q. So all things being equal, you would want to use 24-month study, historical control data, to compare to a 24-month study, correct?
A. All things being equal, yes, if you could get it.
MS. GREENWALD: When there is

a natural breaking point, I need a comfort break.

MR. LASKER: This would be right now is fine.

MS. GREENWALD: I don't want to -- is now OK?

MR. LASKER: Now is perfectly fine.

THE VIDEOGRAPHER: The time is 3:03 p.m.

(Recess)

THE VIDEOGRAPHER: The time is 3:18 p.m. We are on the record.

BY MR. LASKER:

Q. Dr. Portier, let's go back to that Giknis and Clifford 2000 report. It's right on the top of your pile there. Left hand. There it is.

And this, again, is the source of the historical control data that you used for your p-hist. analysis of the Knezevich kidney tumor findings, correct?

A. This is the source of the mean historical control response that was applied in the analysis that appears in the

paper.

It's not the only historical controls group I looked at.

Q. But just to be clear, this is the source of the data that you used for your p-hist. analysis of the kidney tumors in Knezevich, correct?

A. That -- in the published document, yes, that is correct.

Q. Where did you get, by the way -- strike that.

The Charles River posts its historical trend data on its website, correct? That's where you got this?

For example, this 2000 report is right on their website, correct?

A. Whatever it says in my references is where I got this from. It is a website.

Or does it even say? Let's see. Giknis and Clifford, which one is that?

But anyway, I believe it is their website, that is correct.

Q. So this report provides historical control data, and it's on page 1 from 51 studies initiated between January

1987 and December of 1996, correct?

That's by a common study parameters on the top on page 1?

Page 1, common study parameters, the 51 studies included?

A. Oh, yes, there it is. Thank you.

Q. Were initiated between January 1987 and December of 1996, correct?

A. That is correct.

Q. So this is -- the Knezevich study was a two-year study, completed report in 1983, so these studies in this 2000 report for the historical control data were all initiated maybe 6 to 16 years after the Knezevich study, correct?

MS. GREENWALD: Objection, form.

A. They were after the Knezevich and Hogan study, that is correct.

Q. Between 6 and 16 years after, correct?

A. Probably, yes.

Q. And if it was available, you agree that it would be more reliable to use historical control data for studies conducted closer in time to Knezevich,

correct?

MS. GREENWALD: Objection, form.

A. Not necessarily correct.

Q. If you had a choice between historical control data in CD-1 mice for Charles River, for example, that was closer in time to the Knezevich study, you would like to look at that historical control data, correct?

A. I would look at it, but I would have to evaluate whether I thought it was better or worse than this particular dataset.

Q. Have you looked at any Charles River data to determine whether they have data on historical controls for a time period closer to Knezevich?

A. I didn't find them.

If I had, I would have used them probably.

Q. In fact, in your submission to regulators --

A. I will point out that the regulators use this as well, as well as your expert.

Q. In your submission to regulators, you have stated that attempting to compare animals ranging over 16 years for historical control data is inappropriate because of the known drift in strains over time, correct?
A. I probably said something like that, that is correct.
Q. Now, the historical control data that you use in your analysis, your p-hist. analysis in your expert report is listed on page 10 of the Giknis and Clifford paper, 1533, correct?
A. What are we looking at here?
Q. This is the kidney historical control data. It's the third tumor typed down on page 10, kidney.
A. I'm sorry, I have to make sure that kidney is not one of the one where they give the individual tumor incidence? They do not.
Yes, that is it.
Q. And if you look at this data, you have .37 for kidney adenomas and .16 for adenocarcinomas, total is .43. And that

is, I believe, the historical control data that you used for your p-hist. analysis or the number that you use for your historical controls, correct?
A. I use .27 for the kidney adenomas, .15 is what it says here for the kidney carcinomas --
Q. We will give you that one.
A. -- and then the joint historical rate is .44 percent.
Q. Now, for this historical control data, that would be a mix of 24-month and 18-month studies --
A. That is correct.
Q. -- from the Giknis paper?
So to the extent it includes the 18-month study -- well, you would agree if you had the data broken down, it would be more reliable to use historical control data drawn solely from 24-month studies, correct?
MS. GREENWALD: Object to form.
A. If the -- this is a 24-month study, I would prefer to have 24 month only historical controls.

Q. Now, the Charles River website, I've gone to that website and it does have an earlier report.
MR. LASKER: So let's mark that as the next in line.
(Exhibit 15-34, Charles River report dated March of 1995, marked for identification, as of this date.)
spontaneous neoplastic lesions in the CD-1BR mouse marked for identification, as of this date.)
Q. This is a report dated March 1995 prepared for Charles River Laboratory by Dr. Lang, correct?
A. That seems to be what it says.
Q. If you look at page 4, it has a listing of the different studies -- CD-1 mouse studies used to obtain historical control data, correct?
A. That is correct.
Q. And there are ten 24-month studies in CD-1 mice that were used in generating historical control data, correct?
A. That is correct.

Q. The ten studies were initiated between 1981 and 1990, correct?
A. No, 1983 --
Q. Look at --
A. I am sorry. Yes, 1981 and 1990, correct.
Q. So these studies were initiated between 1981 and 1990, correct?
A. That is correct.
Q. So this covers the time period of Knezevich and then forward a period of years, correct?
A. That is correct.
Q. And on page 23 of this report, we have data broken down just for the 24-month CD-1 mice studies, correct?
A. This might not cover Knezevich. I'm sorry, I want to correct my previous answer.
It partially covers Knezevich, but because of the length of time it takes to run a study, Knezevich probably started in 1979 or so.
Q. These studies are closer in time to Knezevich certainly than the studies in

the Giknis and Clifford 2000 report, correct?
A. Correct.
Q. And on page 23, the Lang report sets forth historical control data specifically for the 24-month CD-1 mouse studies, correct?
A. That's what table C1 says.
Q. And on page 24, they report the historical control data for kidney tumors, correct?
A. Renal adenomas and renal cell carcinomas are reported, that is correct.
Q. And the historical control data reported in these studies, 24-month studies, closer to time to the Knezevich study, report a mean historical control rate for kidney tumors, adenomas and carcinomas combined, of 2.3 percent, correct?
MS. GREENWALD: Objection, form.
A. Maybe. When you combine them, you could have multiple adenomas and carcinomas in the same animal, so you would have -- the highest it would be would be

2.3 percent. It could be as low as 1.34 percent for the combined.
Q. The data that you used from the 2000 Giknis report to get your combined data, you added the incidence from the adenomas and the carcinomas in the 2000 Giknis and Clifford report.
We just went through that, correct?
A. Yes, I did it -- correct.
Q. For this data, using the same methodology that you used to come up with a historical control rate for your Knezevich paper, the historical control rate is actually about five times greater than the control rate that you used for your p-hist. trend analysis, correct?
A. It is 2.3 percent.
Q. Compared to .42 or .44 percent, correct?
A. Right. Yeah.
Q. So the actual -- or I am sorry, the historical control incidence of kidney tumors -- the mean historical control incidence from these 24-month studies

closer to time to Knezevich is more than five times greater than the historical control rate that you used for your p-hist. trend analysis, correct?
MS. GREENWALD: Objection, form.
A. That were used by me and the EPA and EFSA, and that is correct.
Q. And to be fair, EPA and EFSA did not conduct a p-hist. trend analysis, correct?
A. That is correct.
Q. You are the only one who has conducted a p-hist. trend analysis, correct?
MS. GREENWALD: Objection to form.
A. For these data, that is correct.
Q. And the historical control rate that you used to conduct that p-hist. analysis is five times lower than the historical control rate reported in this Lang 1995 study that covers CD-1 mouse studies of the same duration and closer in time to the Knezevich study, correct?
MS. GREENWALD: Objection, form.

A. Yes, that's correct.
Q. You also agree that the historical control rates for kidney tumors in CD-1 mice may not even apply to the Knezevich study because additional sections were taken of the kidney tumors in that study, correct?
A. I retract that statement actually. I thought about that when I was rereading it.
The thing is the extra sections produced nothing. There were no new tumors. There were no new findings at all. And so since it's still based upon the original findings, I would say this historical control set is applicable.
Q. If there had been additional sectioning of the -- first of all, when you say you retract that statement, you are retracting a statement that appears in your expert report, correct?
A. Whatever I'm doing, the statement that says because of the taking of three liver slices, these historical controls may not be appropriate, I'm now saying I

believe these historical controls are appropriate because the three extra sections did not change anything.

Q. So just so we are clear, in your expert report, which is 1530 on page 37 -- so this is your expert report.

A. Um-hm.

Q. You state, with respect to your P trend analysis for Knezevich for kidney tumors, and it's about one-third down the page:

"These historical control rates may not apply to this analysis because a reevaluation of the kidney tumors considered additional sections and no information is available on how additional sections affect historical control rates in this strain of mice. Differences have been seen in other settings."

Correct?

A. That is correct.

Q. And that is a statement that you are now retracting today, correct?

A. I'm certainly not retracting the statement that says this has been seen in

other settings. These historical -- what I am retracting is "may not apply."

Q. And for -- just so I understand, the point that you were making in your expert report is that if the historical control animals had been -- there had been additional sections taken of those animals, there might have been additional tumors found in those animals, correct?

A. Correct.

Q. And if you were then doing an apples-to-apples comparison of studies with similar numbers of sectioning, you would want to compare the findings in Knezevich after those multiple sections with control -- historical controls after the multiple sections, correct?

MS. GREENWALD: Objection, form.

A. If the multiple sections had altered the numbers, I would want to do that. Failing to alter the numbers then means that they are appropriate against the original pathology, which is the final pathology. Therefore, they are appropriate.

Q. If it was the case that multiple sections of historical control animals found additional kidney tumors, is it your testimony that those additional tumors should not be considered as relevant historical controls to the Knezevich study?

A. You have lost me a little bit. I'm sorry.

Q. I'll say it again.

If the historical control animals -- those studies where you got the historical control data -- had undergone additional sectioning and found additional tumors -- you got that part?

A. Um-hm.

Q. In trying to identify what the historical control rate was as compared to the Knezevich study, would you have considered those additional tumors found in the historical control animals?

A. I certainly would have looked at it.

Q. And that was the basis of your original statement that you have in your expert report as to why the historical

control rates that you have from Charles River might not apply, because you don't know that there was additional sectioning of those animals, correct?

MS. GREENWALD: Objection to form.

A. I assume -- in fact, I'm certain that under OECD guidelines, there is guidance on how to section kidney tumors. And the kidney tumors that were done in Giknis and Clifford were certainly done under OEC guidelines because of the nature of that laboratory.

The previous ones I don't know about because it was earlier. But they are all done the same way.

Q. And they are just -- there wouldn't be additional sectioning?

A. There wouldn't be additional sectioning because they would be doing whatever the guidelines say.

Q. The 24-month Atkinson study -- and this is in your report at page 39 -- it reports -- and you report in your expert report -- a statistically significant

negative trend for kidney tumors in CD-1 mice with increased dose of glyphosate, correct?
A. Yes, I would guess that's the case.
Q. And the -- you recently told a blogger by the name of Carey Gillam that when the findings for renal tumors in these two 24-month mouse studies, Knezevich and Atkinson, are combined, there is a statistically significant increased trend, correct?
MS. GREENWALD: Objection, form.
A. I don't know. I would have to see.
(Exhibit 15-35, e-mail chain dated June 7, 2017, marked for identification, as of this date.)
Q. For the record, Exhibit 15-35 is an e-mail exchange that you provided to us between you and Carey Gillam, correct?
A. What's the question again? I finally got to read it.
Q. You told Ms. Gillam in June of 2017 that when the results of these two

24-month mouse studies are combined, there is a statistically significant increased trend, correct?
A. Correct, but I think that is wrong. I think I probably intended the two 18-month studies.
Q. OK.
A. Or she might have --
Q. In looking at your revised report -- and this is in connection -- just to be clear, you're talking about the 1983 study, which is the Monsanto study, correct?
A. The first sentence is definitely talking about the 1983 Knezevich and Hogan study.
Q. That is a 24-month study, correct?
A. That is a 24-month study.
Q. That is the context in which you are telling Carey Gillam that when the two 24-month studies are combined, meaning the Monsanto study and the Atkinson study, the kidney tumors are statistically significant, correct?

A. Yeah, that seems to be the case, yes. That's correct.
Q. But that was a mistake, correct?
A. That when they are combined, they are marginally statistically significant, not -- without the term "marginally," they are just marginally statistically significant.
Q. They are not statistically significant, correct?
A. They are marginally statistically significant.
Q. Your statement to Ms. Gillam was incorrect?
A. It seems it's not as correct as I would like it to be.
Q. Now, with respect to the 18-month studies, neither of the two 18-month CD-1 mouse studies are reported a statistically significant increased trend for kidney tumors against concurrent controls, correct?
A. That was a marginal statistical increase in the Sugimoto study.
Q. Correct, not statistically

significant at P equals .05, correct?
A. That is correct.
Q. The Wood study did not find kidney tumors at any dose group, correct?
A. That is correct.
Q. And the Sugimoto study did not find any kidney carcinomas at any dose group, correct?
A. It found kidney adenomas, that is correct.
Q. So just so we are clear, the Sugimoto did not find any kidney carcinomas at any dose group, correct?
A. That is correct -- well, I don't have kidney carcinomas here. So I would have to look back at the original study to make sure there were none because I don't have them here.
Q. In your methodology, your goal at least was to list kidney carcinomas findings in all these studies, correct?
MS. GREENWALD: Objection, form. I missed that. Sorry.
A. Say the question again, please.
Q. When you had kidney carcinomas

data for these studies -- these animal studies, you reported that in these tables, didn't you?
A. When I had them, yes.
Q. But now --
A. In some of them, I'm not absolutely certain. The Atkinson, et al., study, I don't think they separated them at all. I don't think I had a chance to see the difference. So I can't answer the question.
The intent for kidney tumors was to talk about the combined -- if the combined could be made.
Q. But you actually report on kidney adenomas and then you separately report on kidney carcinomas and then you separately report on kidney adenomas and carcinomas combined?
A. Because I had that from Knezevich and Hogan.
Q. So for the four CD-1 mouse studies that you have one study finding a statistically significant negative trend for kidney tumors and no studies finding a

statistically significant positive trend, correct?
A. Marginally significant positive trend.
Q. I'll ask the question again.
From the four CD-1 mouse studies, the P equals .05 is the statistical significance. You had one study finding a statistically significant negative trend, meaning less tumors with more glyphosate for kidney tumors, and no studies finding a statistically significant positive trend, correct?
MS. GREENWALD: Objection, form, asked and answered.
A. The overall evaluation included both the trend test and the historical controls, but yes, when just looking at the trend test and not using anything to do with the historical controls, there are two marginal statistically significant findings that are not at the .05 level.
Q. And there is one finding at the 05 level, statistically significant, showing a lower incidence of kidney tumors

with increased dosing of glyphosate. That's the Atkinson study, correct?
A. Let me look at it again.
Yup, that is probably significant at the 05 level.
Q. In your pooled analysis though, you conclude that glyphosate causes kidney tumors, correct?
MS. GREENWALD: Objection, form.
A. Kidney tumors?
So pooling the 18-month studies is significant. Pooling the 24-month studies is marginally significant. Pooling all four is significant. That is what I -- that is what it says.
Q. What data did you use in this pooled analysis? Did you use data for kidney adenomas, kidney carcinomas or for both kidney adenomas and carcinomas combined?
A. It's for kidney tumors, which is adenomas and/or carcinomas.
Q. So for the Sugimoto study then, where you had only data for adenomas, what data did you use for the carcinomas to pool

for combined total?
MS. GREENWALD: Objection, form.
A. I'd have to go back to the original Sugimoto study to be able to address that, the Greim study.
Q. But am I correct for the pooling, you would want to put in -- assuming that there were no kidney carcinomas in that Sugimoto, you would want to include 0000 for the kidney carcinomas in your pooled analysis for Sugimoto, correct?
MS. GREENWALD: Objection, form.
A. I didn't do a pooled analysis of kidney carcinomas alone. So I can't answer the question because you -- I didn't do such an analysis.
Q. No, I'm talking about for combined, when you do a combined analysis, would you include the data for the kidney carcinomas in that pooled analysis?
A. Yes, I would.
Q. Now, your pooling methodology for renal tumors did result in what you have described here today as marginally significant -- a marginally significant

increased trend for renal tumors in the two 24-month studies, correct?

And if you look at page 11 of your rebuttal report, where you have your pooled analysis -- if you go in your rebuttal report, you have the table. It is just a little bit easier to find.

Table 3 on page 11 of your rebuttal report has all your pooled analysis.

A. OK. Got it.

Q. So for the two 24-month studies, when you pooled them for kidney adenoma and carcinoma, you report what you have been describing as a marginally significant increased trend, correct?

A. For the 18-month studies?

Q. No, the 24-month studies.

A. 24-month studies.

That is correct.

Q. So based upon your pooling methodology then, your opinion that the renal tumors and the combined data for Knezevich and Atkinson show an increased trend of tumors, that's almost significant,

correct?

MS. GREENWALD: Objection, form.

A. The combined pooled analysis of Atkinson and Knezevich, that shows a marginally significant P value which is almost significant, correct.

Q. For an increased trend in tumors with increased --

A. For an increased trend in tumors.

Q. If you can go to your report -- your initial report at page 38, so we can look at the data.

For the Knezevich study, you have 1 tumor in the control animal, 0 in the low-dose group, 1 out of 50 in the high-dose group, and 3 out of 50 in the -- I'm sorry, let me state that again.

For Knezevich, for kidney adenoma and carcinoma combined, you report 1 out of 49 tumors in the control animals, 0 out of 49 in the low-dose group, 1 out of 50 in the mid-dose group, and 3 out of 50 in the high-dose group, correct?

A. That's what EPA reported, that's correct.

Q. And for the Atkinson study, which is the next page, on 39, you have 2 out of 50 kidney adenomas and carcinomas in the control animals, correct?

A. That is correct.

Q. You have 2 out of 50 in the low dose, correct?

A. That is correct.

Q. You have 0 out of 50 in the mid dose and 0 out of 50 in the high dose, correct?

A. That is correct.

Q. And so if you look at these two studies combined, you have 3 renal tumors out of 99 control mice in the control animals, correct?

A. That's correct.

Q. You have 2 renal tumors out of 99 in the low-dose groups, correct?

A. Correct.

Q. You have 1 renal tumor out of 100 in the mid-dose group, correct?

A. These are terribly different doses. You can't just combine them that way. That's not how it's done. I'm sorry.

Each individual group and its dose is fed into the pooled analysis exactly like it is in the study.

So the pooled analysis would have 1 out of 49 in control and 2 out of 50 in control. Then at a dose of 190 mgs per kilo per day, it would be 0 out of 49. At 102, it would be 2 out of 50. At 298, it would be 0 out of 50. At 955, it would be 1 out of 50. At 1,000, it would be 0 out of 50. And at 5,874, it would be 3 out of 50.

Q. So the trend analysis then, if I understand your testimony correctly, that you conducted for the purposes of your expert report here did a trend analysis using each of the different dose levels as a different point in the trend analysis over the combined studies, is that correct?

MS. GREENWALD: Objection, form.

A. The individual doses are attached to the chemical. You don't just haphazardly pool high and low dose.

If that's what you just said, then that's correct.

Q. Let me just be clear, in your earlier submissions to EPA and to the European regulators, you did combine doses into a control, a low dose, a mid dose and high dose for your trend analysis, correct?

MS. GREENWALD: Objection, form.

A. No, I didn't. I combined them into that form for an illustration of what the dose response trend looked like, because when you put the individual dose response points up there, it's very difficult to see a trend just simply because of the nature of that type of data, but by grouping doses that were close together, you got a better chance.

The pictures also included a confidence interval side to side and up and down.

Q. Let me make sure I'm clear on your methodology.

A. That's not what's here.

Q. I understand that.

In your methodology, when you submitted a pooled analysis to the EPA, did you conduct your P analysis based upon 4

different combined dose groups or did you conduct your pooled analysis based upon 8 or 16 or 12 different dose levels as the case may be?

MS. GREENWALD: Objection, form.

A. The analyses submitted to EPA included both simply for completeness. The individual dose group studies are the one which are the clearest and correct way to do this.

Q. And just so I understand then, for your pooled methodology, while you have three tumors -- real tumors in control mice in Knezevich and Atkinson and three tumors in the high-dose group in Knezevich and Atkinson, that data under your pooled methodology results in an almost statistically significant increased trend in tumors with increased dose, correct?

MS. GREENWALD: Objection, form.

A. There are other doses in that dose response range which all play a role in the statistical significance of that trend. And all of those doses combined in the pooled analysis gave a statistically

significant trend.

The reason it's statistically significant is because the three out of control are at low doses, which also have very low response as well, and remember, it's not 3 out of 50, 49 in control, or 99, it's 1 and 2. But they are matched with other dose groups that are 0, 0, 2, 0, 0, 0, 0. That pushes that down in the low exposure range and the upper exposure range picks up the trend.

That is why you see a statistically significant trend.

Q. And just so we are clear, if you look at the different tumor levels in these two studies, there were five renal tumors found in the controls and the lowest dose group studied, and that there were four tumors found in the three highest dose groups studies, correct?

A. Again, over a very broad range, that is a statement of fact.

Q. So through your pooling methodology with two studies where you have 5 tumors out of 200 in the lowest -- in the

controls at the lowest dose studied and 4 tumors out of 200, if you will, in the highest doses studied, you have an almost statistically significant increased trend, is that correct?

MS. GREENWALD: Objection, form.

A. I'm sorry, you have -- you have lost me. What am I doing?

You're trying to make me pool something new?

Q. I'm not making you pool anything. You have done the pool.

In pooling these two studies, you have -- the data shows that you have 5 kidney tumors in the 150 animals where you have control animals and the lowest dose studied, correct?

A. I have what appeared in the lower dose groups, that is correct.

Q. And so you have -- and you have 4 tumors out of 150 in the highest doses studied?

A. There are doses with 0, 0, 1 and 3.

Q. I understand that. But if you

Page 294

look at the data combined and you're pooling this data --
A. I'm not going to look at the data combined. The data is what it is. The data is 0, 0, 1, 3.
Q. It's actually 1, 0, 1, 3 --
A. 1, 0, 1, 3, whatever.
Q. -- and 2, 2, 0, 0, correct?
A. It is whatever it really is. So it is 1, 2, 2, 0, 1, 0, and 3.
Q. And that distribution under your pooling analysis results in an almost statistically significant increased trend, correct?
MS. GREENWALD: Objection, form.
A. That distribution under the use of the scientifically verifiable and methodologically sound Armitage linear trend testing proportions shows a P value which is statistically significant.
So does the analysis using the logistic regression approach suggested by your expert.
Q. We can talk about that later because our expert wouldn't agree to that.

Page 295

Let's talk about -- I take it that you have your code for your pooling analysis -- various pooling analyses that you conducted over time, correct?
A. Let me correct something here. You keep calling it "my pooling analysis." The pooling analysis I did is the more accurate statement. Again, because I told you Dourson has already done it, by all technical reasons, I would have to reference him now that I know it's there, and so it should be his pooling algorithm, not mine.
But the point is it is just the pooling algorithm I used.
Q. The pooling algorithm you used, you still maintain that?
A. Yes.
Q. And has that pooling algorithm changed over time for glyphosate?
A. I'm going to try to break it down to make it clear.
There is pooling of the data, and then there is analysis of data by the Armitage linear trend test, and then there

Page 296

are three ways you can calculate P values in the Armitage linear trend test.
So the choice of which datasets to pool has not changed. So the pooling has not changed. The analysis by the Armitage linear trend test in proportions has not changed. The only thing that has changed has been the way in which I calculate the P values for those tests.
Q. Understood.
The -- let's talk about the modified table 15 in your rebuttal report.
A. OK.
Q. So your table 15 in your listing of total sites, that is, as I understand it, a calculation of the total sites for which three or four tumors were found in the glyphosate data, correct?
A. With exception. The rare tumors in kidney and hemangiosarcomas are also included in this table.
Q. That wasn't my question. My question is the total sites column.
A. The hemangiosarcomas only have two tumors.

Page 297

Q. I understand that.
A. I am sorry.
Q. My question is, if you look at modified table 15, you have a calculation of total sites.
Do you see that?
And it's a column -- the fourth column on modified table 15.
A. Yes, I see it.
Q. It has a footnote, footnote 1, correct?
A. Yes.
Q. And total sites is based upon the sites with three or more tumors, correct?
MS. GREENWALD: Objection, form.
A. Actually, it's described directly in the text of the document. On page 4 first full paragraph, this also includes joint analyses and some room for joint analyses and other things.
Q. I understand that.
I'm looking again just at the total sites column.
A. Correct.
Q. And you have a footnote that

describes that the total sites are taken from an analysis done by a Dr. Haseman, correct?

MS. GREENWALD: Objection, form.

A. It's a suggestion from Dr. Joseph Haseman in his EPA testimony.

Q. And Dr. Haseman in his EPA testimony is quantifying the number of sites in the glyphosate data for which three or more tumors were found, correct?

A. He is quantifying the number of sites which he felt would be relevant in a statistical evaluation of how many sites were actually evaluated in the study.

Q. Well, for this column though he is actually just doing an addition. He's adding up the number of sites for which three or more tumors were found in this column?

A. No, in this column is me adding up three or more tumors --

Q. OK.

A. -- and adding, like Dr. Haseman did, some room for joint analyses of tumor findings.

Q. Is it your testimony that the total sites calculation that you use in your report includes sites where less than three tumors were found?

A. Yes.

Q. So that is your understanding of table 15 for the total sites column?

MS. GREENWALD: Objection to form.

A. Table 15 includes enough room to cover all of the analyses that were done.

Q. Well, that's -- I don't know what "enough room" means.

A. Enough numbers of tumors to incorporate all of the analyses that are relevant for these data.

Q. To get these numbers that you have listed here, you have a footnote that states:

"Numbers of sites is based upon suggestions by Dr. Haseman in his written testimony to the EPA with female rats modified for fewer sites with three or more tumors. Male mice, 10.5 sites. Female mice, 15 sites. Male rats, 21.5 sites.

And female rats, 26."

Correct?

A. That's what the footnote says.

Q. In Dr. Haseman's analysis, these numbers, at least 10.5, 15 and 21.5, are the numbers he calculated for tumors with -- for sites with three or more tumors, correct?

A. That's not what he says as far as I know. He was just looking for sites that would be likely.

But I'd have to see his EPA testimony again to make sure that that is the case.

Q. OK. So --

A. That is -- that is probably what he did. That's probably the case. I don't know if he said it.

Q. OK. But you now testify that you think it probably is the case that the numbers in this table for total sites are the number of sites for which three or more tumors were found?

MS. GREENWALD: Objection, form.

A. The numbers in this table --

Q. For total sites.

A. -- are consistent with what I found in evaluating the numbers of sites with three or more from the data in these studies.

Q. OK, fair enough.

The total sites then is used as your -- as one of the -- well, total sites is then used to calculate the expected number of sites you would see at P less than .05, correct?

If you take the total sites and multiply it by .05, correct?

A. Correct.

Q. That's your expected number of less than .05, which is the column on table 15 right next to the total sites column, correct?

A. That is correct.

Q. And you also use that total site column -- total site number to calculate the expected sites P less than .01, correct?

MS. GREENWALD: Objection, form.

A. I used the total sites,

multiplied it by .01 to get the expected less than .01 in that last column -- third column -- third-from-last column.

I should note just for the record while we are here, I have an addition error. I put 19 on both sexes for rats when it is really 18.

Q. And the --

A. The sum is the same.

Q. 30 should be 29?

A. No, the 30 is 30. That 19 is just wrong.

Q. That should be 18?

A. 18.

Q. So 11 and 6 equal 18?

A. Let's see here.

Q. If you have 11 male and 6 female, you add up to 18?

A. The 12 -- the first one is 12. If I count the tumors themselves, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 1, 2, 3, 4 5, 6, it should be 18.

I don't know why the counts in the tumors are incorrect for the rats.

Q. OK. So now for your observed

tumors, which you have next to your expected, you also include trends that you calculate based upon your p-hist. analysis, correct?

A. I'm sorry, say that again.

Q. For your observed trends of less than .05, and for less than .01, you use -- you report the numbers that you find for a concurrent control trend test and also add to that the numbers of -- that you observed through your p-hist. analysis -- historical trend analysis?

A. No, of course not. That would be terribly methodologically flawed.

Q. So is it your testimony then that you do not include in your observed count in table 15 findings that are only significant based upon the historical trend analysis?

A. No, the -- this -- I should be clear in the text, but I'll make it clear now, what I'm putting in here is the P value observed for the trend test, because the correct control to use is the control for the trend test, except in the cases of

very rare tumors, which are the two mouse tumors we were talking about earlier, and those P values are put in here from the historical trend test, not from the typical trend test.

Q. So let me make sure I understand correctly.

In your table 15, for your expected, you have the number of tumors you would expect based upon total sites with three tumors or more, and then you have your expected and then you have your observed column, and your observed column also includes tumors that you observed -- or trends that you observed based upon your historical trend analysis, correct?

MS. GREENWALD: Objection, form.

A. I -- I'm -- I'm not understanding the question. It's --

Q. OK. Your -- through your historical trend analysis --

A. Let me try -- let me try something --

Q. Let me just ask the question this way: For your historical trend analysis,

for example, you calculated statistically significant trends at two sites where there are only two tumors, correct?

A. Rare tumors at rare sites.

Q. Right. And those sites would not be part of the total sites that you have listed in your column on total sites because there is only two tumors there, correct?

A. No. This is not -- as I pointed out before, this is for the typical types of analyses that would be done. Enough extra counts were put in there to cover the counts for the two rare tumors that we looked at.

Q. OK, let me go back to that, because I'm misunderstanding. I thought we had established this.

In your total sites, footnote 1 shows how those total sites were calculated based upon what Dr. Haseman had calculated. Those were the sites for which three or more tumors were found, correct?

A. No --

MS. GREENWALD: Objection, form.

A. -- I'm sorry, that's not the case.

If you look at table 1 in the report -- in my rebuttal report, table 1 tells you how many tumors of each type were in each -- were in each of the studies.

Q. Right. And you have each individual site, and then for you total sites, you also include combined tumors, correct, where you had three or more tumors in the combined data, correct?

A. If they are even done or not done.

But I have -- in this table, I have more than -- I have somewhere around, I believe, 100 more observe -- more -- I have the possibility of 100 more evaluations being done than the total number of eval -- of sites with three or more tumors.

So I've left 100 open spots for analyses that might have been done rather than just the three or more tumors.

Q. Dr. Portier, the numbers that you have in your report for total sites are

numbers that Dr. Haseman reported, correct, that's where you got those numbers?

MS. GREENWALD: Objection, form.

A. With a modification, and those numbers are very conservative.

Q. The modification you made was to reduce the number of sites for female rats as -- from what Dr. Haseman had reported and you made it lower, correct?

A. Yes.

Q. And Dr. Haseman --

A. And I explained why I did that.

Q. And Dr. Haseman, in adding up those sites that you use, he added the number of sites, either with individual or combined analyses, that had three or more tumors, correct?

A. No, he was -- he was just roughly looking at two of the -- three of the studies, I believe -- I'd have to see his writeup, if you have it.

Q. Sitting here today, you don't recall one way or the other whether those total site numbers from Dr. Haseman that you use in your table 15 were for sites

with three or more tumors?

MS. GREENWALD: Objection, form, asked and answered.

A. I would have to see Dr. Haseman's comments to be able to answer that question for you.

Q. Well, would you agree if those numbers for total sites only include sites with three or more tumors, for your analysis, since you also looked at historical trends and rare tumors, you would have to provide some additional bump up for the total sites to account for the possibility of trends, the sites with fewer than three tumors, correct?

MS. GREENWALD: Objection, form.

A. That bump up, as you put it, is already incorporated in these sets of numbers such that there are sufficient numbers in each of the sex species groups that I feel I've probably put a number in here which is more than the number of evaluations which were actually done.

Q. OK. And in your calculation of your adjustment for p-hist. -- first of

all, in deciding which studies or tumor sites to conduct historical analyses for, you did not do historical analyses for all rare tumors in these studies, correct?

MS. GREENWALD: Objection, form.

A. Yeah, I -- I don't -- I don't understand the question. I am sorry.

Q. In deciding which tumor sites to conduct a p-hist. analysis, you base that on your review of where there were sites that were -- where there had been one finding of a statistically significant trend in a concurrent control, correct?

MS. GREENWALD: Objection, form.

A. Yeah, I'm -- again, you have lost me in the question. I am sorry.

Q. Let me ask this: Through your p-hist. analysis, you can calculate statistically significant trends at sites with one or two tumors, correct, for rare tumors?

A. An analysis using that approach could potentially find a positive finding for just two tumors, that is correct.

But the two I chose -- the

tumors -- let -- the tumors I chose to evaluate were identified by regulatory agencies as a concern because those tumors were different than the historical controls.

I didn't go back and look at every single site and get historical controls for every single site because I didn't analyze every single site with two tumors in it. So that just -- it would never have occurred except that this was flagged already by the regulatory community.

Q. So in your --

A. And I will add, because I still don't understand -- I guess I don't have to understand the relevance of your questions.

Q. So for your historical trend analysis, you didn't conduct -- you only did historical trend analysis for tumors that had been flagged as potential issues, correct?

MS. GREENWALD: Objection, form.

A. I did -- for every tumor where EPA or some other authority flagged it as

falling outside of the range of historical controls, and arguing that it could go away, I did the historical control analysis to illustrate the importance of doing something correct with historical controls.

However, as I say at the beginning, the best control to use for any of these studies is the concurrent control, except in the case where there are rare tumors. So in those cases, I used the P value from historical control for this table that you're looking at.

Q. If you were to determine the number of P trends that you might find by chance in a historical trend analysis of rare tumors -- so you would have -- as you have already testified, if you conduct 20 tests, you would find one by chance, correct?

MS. GREENWALD: Objection, form.

A. You would not find any by trend analysis. I'm sorry, two -- two tumors -- I must have missed your question.

Q. I'll ask it again.

For tumors where you can do

historical trend analysis, where you could calculate a p-hist., the rare tumor, and you have two tumors, so there's enough with rare tumors, two tumors with a historical trend analysis is enough to find a historical -- to find a trend, correct?

A. With the right historical control dataset, yes.

Q. And if you were to look at 20 rare tumors where you have historical control data and run a p-hist. analysis, you would expect by chance that one of them would report a P less than .05, correct?

MS. GREENWALD: Objection, form.

A. No, I can't say that. You're in a realm of behavior of the statistical methods that are dependent upon both the historical control dataset and the concurrent dataset, and to be quite honest, I'd have to sit down and do some analyses to figure out what this type of analysis you are suggesting would be done.

But I don't understand why you're suggesting the analysis because typically you flag something as a rare tumor based

upon the advice of the pathologist involved.

Q. I understand. But in your table 15, you're comparing what you observe to what would be expected by chance.

And what I'm trying to understand is what you -- what number of sites you would expect to see by chance for rare tumors or through historical trend analysis versus the number of trends you found with a historical trend analysis?

MS. GREENWALD: Objection, form.

A. But this table, 15, is only for the number of analyses done. It's not -- not a theoretical number of analyses. It is for analyses done.

Q. That may be why I misunderstood.

So your table 15 is comparing only the analyses you did as total sites, and then calculating an expected number of sites and an observed number of sites, is that correct?

A. No. It's calculating the number of potential sites.

I didn't calculate exactly how

many analyses I did. I guess I can go and do that but I haven't, because what you're looking at is -- I looked at all the EFSA studies and EPAs.

So it wouldn't be correct for me to put in here the total sites that I personally evaluated, because those other documents guided me to sites, and those other documents had evaluated sites in a standard statistical way. But they didn't tell me how many they did.

So I technically can't give you an exact number for the total sites. This is the way it is sometimes with practical science. What I can do is create a logical, reasonable estimate for the total sites that had been reviewed, had been analyzed. And that's what this is.

Q. Just so I'm clear, if your total sites number did not include the numbers that would account for both individual tumor types with three or more tumors for adenomas and carcinomas and combined total sites with three or more tumors and the rare tumors for which you might find a

statistically significant finding --

A. The two rare tumors.

Q. OK, so all of those possibilities, for your modified table 15 to make sense, would have to add up to the total sites that you have listed in your total tumor sites?

MS. GREENWALD: Objection to form.

A. Or in this case, I've been conservative enough that I'm pretty certain that total sites is larger than that number of the sites that you have evaluated, which makes it somewhat conservative.

Q. And you can, in fact, just add up the number of sites in these studies with three or more tumors, correct, you have got all the data?

A. I've done that.

Q. Have you looked at all the sites combined and separately?

Because you report both of those in your table.

MS. GREENWALD: Objection, form.

Q. So you have kidney adenomas,

kidney carcinomas, kidney adenomas and carcinomas combined?

MS. GREENWALD: Objection to the form.

A. I've allowed sufficient numbers in the total sites to cover those.

Q. Have you added up all the sites in the studies with adenomas more than three, carcinomas more than three, and adenomas and carcinomas combined more than three?

MS. GREENWALD: Objection to form.

A. You wouldn't always do the combined analysis. That's not standard methodological practice in toxicology. You do the combined analysis only sometimes.

So adding up that number, creating that number that you just made up -- you just suggested would not reflect the number of sites that would actually be done.

Q. Have you gone through the exercise of adding up the sites that you think should be combined so you actually

have the total number of sites with adenomas, with carcinomas, and adenomas and carcinomas combined where you believe that's appropriate?

MS. GREENWALD: Objection to form.

A. You can't do that evaluation sort of in isolation. So no, I have not done that.

Q. So sitting here today, do you know the total sites -- total number of sites for which you could have done a trend analysis for -- I'm sorry, for adenomas, for carcinomas, and as you think it appropriate, adenomas and carcinomas combined in this dataset?

MS. GREENWALD: Objection to form.

A. You can't -- again, you can't look at it that way. If carcinomas are zero, for example, you would only do the adenoma evaluation. If adenomas are zero and you have carcinomas, you would only do the carcinoma evaluation. There are other similar situations where you do those site

types of evaluations.
Unless I sat with EPA and they gave me every test they did, or I sat with EFSA and they told me every test they did, I cannot figure that number out. All I can do is give you an approximation.
Q. OK, I'm not asking about the number of analyses that were done. I'm asking you about the number of analyses that could be done, because that's what your total sites column is, correct?
MS. GREENWALD: Objection to form.
A. No, the total sites column should be an estimate of the number of sites that were done. That is what it's attempting to give you.
Q. I understand.
MR. LASKER: Let's take a break.
THE WITNESS: I'm happy to go on.
Q. In your report for female CD-1 mice, you have listed an observed trend that you identify as "SL."
Do you see that?
It's on mice tumors P less than

05.
A. Mice tumors P less than 05 SL. Yes.
Q. And you have SL listed as skin lymphoma?
A. Yes, it is.
Q. Now, I don't find any skin lymphoma in any of the studies. There was a SL trend in the Knezevich study that you report for spleen lymphomas.
A. Oh, that's correct, that's the splenic lymphomas. Thank you. Yes, that is the splenic lymphomas.
Q. You include spleen lymphomas as one of your observed trends in your table 15?
A. It is an observed trend, that is correct.
Q. OK.
A. That is correct.
Q. Now, the spleen lymphomas, I think in your rebuttal report, you state should be combined with all the lymphomas for a combined lymphoma number in doing a statistical analysis?

MS. GREENWALD: Objection to form.
A. They're not -- they're not -- I'm sorry, give me a minute to look this up, please.
Splenic lymphosarcomas. They are not lymphomas. They are lymphosarcomas.
Q. So in your testimony, lymphosarcomas do not need to be listed with lymphomas?
I'm trying to understand.
A. That's correct, you wouldn't combine sarcomas with lymphomas.
Q. Do you know how many lymphosarcomas were analyzed in Knezevich, given tissue types?
A. By whom.
Q. By the investigators in Knezevich?
A. I'm not able to see the full report from them, so I wouldn't know that.
Q. And you have the data table from --
A. But I don't have the report of what analyses they did, therefore, I can't

answer the questions.
Q. You have data presented for a number of different tissue type lymphosarcomas in the Knezevich study, correct?
A. I have -- yes, I have data tables that show lymphosarcomas in several different tissues.
Q. And in your response to Dr. Corcoran, you testify that Dr. Corcoran improperly calculated trend analyses reporting out all of those different lymphosarcoma sites and that they should be combined in your opinion, correct?
MS. GREENWALD: Object to form.
A. I noted that he had done multiple analyses about lymphosarcomas and there only should be one lymphosarcoma analysis. However, I can't do that myself but I did report the one.
Q. But the multiple lymphosarcoma sites that are separately calculated, those would not be separately listed as total sites because the total sites in your table 15 combines systemic tumors, correct?

MS. GREENWALD: Objection, form.
A. They were listed in the total site that Dr. Corcoran had done --
Q. Not Dr. Corcoran's, I'm talking about yours.
A. Let me finish -- and the table 15 has one site for lymphosarcomas. One, it takes up one site and it was evaluated, so it is put into this table. And it had a P value associated with it, which also goes into this table.
This is a table of what evaluations were done.
Q. So the total sites column then does not -- in table -- modified table 15 does not include the other lymphosarcomas sites that were analyzed in the Knezevich study, just the splenic lymphosarcoma, correct?
MS. GREENWALD: Objection, form.
A. In my table 1 on page 9 of the rebuttal reports, the three-or-more-tumors column only allows one spot for lymphosarcomas. So when lymphosarcomas were found, whether it was five organs or

one organ, I collapsed it down into a single entry into this table.
Q. So in the Knezevich study then, for the purposes of your analysis, you have one total site where there could be a calculation conducted and one tumor site being splenic lymphosarcoma where you observed a trend, is that correct?
A. That is -- for each study, there is sufficient room for that type of evaluation to be done, and in this case, there was one evaluation of that type, and that is included.
Q. And the other however many other sites that were evaluated are not included in the total sites column?
MS. GREENWALD: Objection, form.
Q. For lymphosarcoma. I'm sorry.
MS. GREENWALD: Same objection.
A. I can't know that. I don't know how many other sites were evaluated. As I pointed out before, that information is not available to me, so I can't answer the question.
Q. Just to be clear, the Knezevich

study is the Monsanto 1983 mouse study, correct?
A. The splenic lymphosarcomas?
The rows are the Knezevich and Hogan study, that is correct.
Q. So you have that full report -- study report, correct?
A. I have that study report, but the study report is presented with groups of -- the part I have is presented with groups of animals by organ. So I -- it gives me the numbers for spleen and gives me the numbers for wherever, say, kidney.
But because this tumor can appear quite often in multiple organs in the same animal, and I'm interested in incidents, I cannot back those numbers out and make the correct -- what I would consider the correct classification.
Q. In your modified table 15, you also include listing of four observed sites for -- and these are actually as opposed to the skin and bone.
You have four sites for skin tumors. You have three, I think, skin

keratoacanthomas and one basal cell carcinoma in your table for the rat studies, correct?
A. I have skin keratoacanthoma for the rat studies, I have three, and one basal cell, that is correct.
Q. Now, let me show you -- you talked about the NTP is sort of the gold standard for these cancer bioassays, correct?
A. For the way they are done and the way they are presented and the way they are analyzed, that is correct.
Q. And the NTP combines different skin tumors into one category, correct?
A. That I don't know for certain.
MR. LASKER: Let's mark this.
A. Of course, NTP uses a different strain of animals.
Q. They use many different strains of animals, but I'm talking about -- let me ask you this: When NTP combines tumor types, does it combine different tumor types for different strains of animals?
So, for example, you --

A. Oh, they might, yes, they might.
Q. For skin tumors, do you know one way or the other whether NTP combines tumor types for any different type of rodent?
A. No, I don't.
(Exhibit 15-36, report entitled "NTP historical controls, report all routes and vehicles, Wistar-Han rats, August 2016, marked for identification, as of this date.)
Q. This is Wistar rats, and I'll refer you to page 32 of this report.
MS. GREENWALD: I am sorry, what page?
MR. LASKER: Page 32.
Q. As reflected at least for this rodent, the NTP combines I think it is something like 12 different types of skin tumors to report an overall combined instance for skin tumors, correct?
A. On the previous -- 12?
On the previous page, it gives the individual historical control data for basal cell adenoma or basal squamous tumor benign, basal cell adenoma, basal squamous

benign or trichoepithelioma, basal cell carcinoma, basal cell carcinoma with basal squamous tumor, malignant or not otherwise specified, and then it provides a category for all of these things combined in one table, yes --
Q. For purposes of --
A. -- and there is no skin keratoacanthoma in this listing.
Q. Actually, page 32, just so we are clear, the listing -- the second listing includes keratoacanthoma, correct?
A. Yes, there it is, correct.
Q. And that is grouped together with basal cell or squamous cell carcinoma, carcinoma, basal squamous tumors M or B, basal cell adenomas, adenomas, papillomas, squamous papillomas, keratoacanthoma and trichoepithelioma, correct?
A. That's correct. It doesn't mean they would analyze it that way, but that is what's on this paper.
Q. For the purposes of your total site analysis -- or total site numbers in modified table 15, did you have counts for

different sites for the skin or was skin just one site for your total site calculation?
A. I'm sorry, when I counted up all the numbers of tumors greater than three tumors, it could easily have two skin sites or three.
Q. Do you recall right now whether you had more than one skin site for your total sites or not?
A. I would have to go back to the original tables and read through and see how many of them were greater than three and/or skin.
I don't have that recollection. I can't remember that much detail on -- with so many numbers around.
MR. LASKER: Now I would like to take a break. Thanks.
THE VIDEOGRAPHER: The time is 4:36. Off the record.
(Recess.)
THE VIDEOGRAPHER: The time is 4:48 p.m. We are on the record.

BY MR. LASKER:
Q. Dr. Portier --
A. Before you ask me a question, during the break, I took the time to look over this Charles River Laboratory document you gave me. And I would like to correct my reaction to it a little bit on the record.
Q. Which document is that?
A. 15-34.
MR. LASKER: Let's go off the record for a second, just because I want to find out if you are going to be asking questions, but if you will, we will save it.
THE VIDEOGRAPHER: Did you say go off the record?
MR. LASKER: Yes.
THE VIDEOGRAPHER: The time is 4:49 p.m. We are off the record.
(Recess.)
THE VIDEOGRAPHER: The time is 4:50 p.m. We are on the record.
MS. GREENWALD: I would like the record to reflect Dr. Portier asked

Mr. Lasker if he could have a minute or two to clarify his answer to the document 15-34, which he admitted during his testimony before he had never seen before, and during the ten-minute break, Dr. Portier used that to familiarize himself very briefly with it.

He did not use that time at all during the time Mr. Lasker was asking him questions. He asked for one or two minutes to clarify and correct his answer, and Mr. Lasker right now is not letting him do that.

MR. LASKER: Just so the record is clear, Dr. Portier will have the opportunity to clarify that before the end of the deposition here today.

MS. GREENWALD: I have made my peace. He can do it on your time.

Q. Dr. Portier, let's turn to your opinions regarding mechanism of carcinogenicity in your report.

You mentioned ten key characteristics of carcinogens, and I think

it is part of the Smith publication, correct?

A. That is correct.

Q. And is it your opinion that there is only sufficient evidence for glyphosate with respect to two of those characteristics, correct?

A. I do not believe that is what I said.

Q. Let me look at your report on page 53.

And on page 53 you're talking about the ten characteristics of mechanisms for carcinogenicity, correct?

And it's the top of the page where you cite to Smith.

A. That is correct.

Q. And you say, "There is limited evidence on glyphosate for most of the key characteristics," but then you identify two characteristics, genotoxicity and oxidative stress, which you believe have sufficient evidence, correct?

A. To warrant a full review. I reviewed all of the other evidence but it's

limited and not -- doesn't warrant a full review.

Q. OK, that's fine.

Now, you have stated that we don't know for sure if glyphosate is genotoxic, correct?

MS. GREENWALD: Objection, form.

A. Where would you -- where is this in here?

Q. First of all, that's a general question and then I can do a follow-up.

But I want to know if you recall having made the statement that we don't know for sure if glyphosate is genotoxic?

MS. GREENWALD: Objection, form, and the witness asked you to please identify where you think he made that statement.

A. I can't -- I -- my expert statement is right here and I believe my conclusions on genotoxicity are quite clear. So if you want to ask me about that, please ask me about it.

Q. Well, I'm asking you whether or not you have made the statement "we don't

know for sure if glyphosate is genotoxic."

If you don't recall, that is fine.

MS. GREENWALD: Objection, asked and answered. My objection stays the same.

A. I seriously don't recall.

Q. OK. Can you state here today that you have not made the statement that we do not know for sure if glyphosate is genotoxic?

MS. GREENWALD: Objection, asked and answered, argumentative.

A. I don't recall. It's still the answer.

Q. Let's mark as -- I will have to make this as two documents. This is an article that appeared in a German news site, so we have had it translated.

So we will have the German document as the next in line, and then the English translation as 38?

MS. GREENWALD: Can you please tell us who translated it?

MR. LASKER: It is set forth on

Page 334

the document.
MS. GREENWALD: Was it a certified translator?
MR. LASKER: It is. You will see it in a second.
(Exhibit 15-37, German article, marked for identification, as of this date.)
(Exhibit 15-38, translation of German article, marked for identification, as of this date.)
Q. So, Dr. Portier, 15-38, which will be more useful for us to look at since it is the translation to English -- first of all, the record can reflect that it is a certified English translation as set forth on the bottom of page 1.
MS. GREENWALD: So, Mr. Lasker, if I can just ask for the record whether this was a certified translator. I'm not seeing that reference here, that she is a certified translator.
She is certifying that she translated it. Is she a certified

Page 335

translator?
MR. LASKER: We will get that information for you if it is not on the document. I apologize right now.
MS. GREENWALD: It's not.
Q. Dr. Portier, in -- do you recall being interviewed in July, which would be about a month and a half ago, about the European Union assessment of glyphosate?
MS. GREENWALD: I just want to -- I'm objecting to all these questions.
You can answer them, but I'm objecting to all the questions on the grounds that we have no idea if this is an accurate translation.
MR. LASKER: That's fine.
A. I was interviewed by Martin Forter and Stephanie Fuchs.
I don't believe it was July 18. I think it was before that.
Q. OK, but then it would appear in an article after you were interviewed, that makes sense?
A. Of course.
Q. OK. And if you can look at

Page 336

page 4 on the English translation, this is -- just so the record is clear, and you can look through this -- this document sets forth a series of questions to you and your answers on various issues with regard to the EFSA and ACA review of glyphosate, correct?
MS. GREENWALD: You have to give him a chance to look at this, Mr. Lasker.
A. Now, what is your question.
Q. This -- in your interview with Mr. Forter and Ms. Fuchs, they asked you a series of questions, and you provided answers. That's normal interview format, correct?
MS. GREENWALD: Objection, form.
A. In this case, they asked questions, we had a discussion, that is correct.
Q. And one of the questions they asked you, as reflected on page 4 of the English translation, was is glyphosate genotoxic, correct?
MS. GREENWALD: Objection, form.

Page 337

A. That is what they give -- your translator has said what they say, and that is what they say.
I can't tell you if they asked me that question in this frame in the interview.
Q. And if you look at the -- well, do you speak German?
A. That still wouldn't solve the problem because I don't know if they asked me that question verbatim as they put it here.
Q. That's not my question. My question is: Do you speak German?
A. I speak some.
(German phrase.)
Q. If you can also look at Exhibit 15-37, the German article on the bottom of page 3, there is a question that I'm going to butcher in German, but it "Ist Glyphosat genotoxisch?" is the question.
MS. GREENWALD: Hold on.
Don't guess. I said don't guess.
If he is not fluent in German, he can't guess on what this means.

MR. LASKER: OK.
A. Again, the -- there is a two-stage process here. The first is did they ask me the question? And the second is did your translator get it right from what they wrote?
I can't tell you if they asked me this question verbatim. But I can tell you that "Ist Glyphosate toxicisch" is the question that they have -- you have converted to English.
Q. And the conversion "Is glyphosate genotoxic" is an accurate translation of that question, correct?
A. That is correct.
Q. The answer that they have -- you can read it in German as well as in English from you -- is, "We don't know for sure. The data of 50 percent of the studies argues for genotoxicity, 50 percent against it."
First of all, do you see that statement in the article?
MS. GREENWALD: Object to form.
A. I see it in the translation,

that's clear. I have --
Q. You have to turn the page for the German.
A. No, it's right here. But I'm not good enough in German to look at this.
Q. Can you state, sitting here today, that you did not state to this reporter, in answer to the question "Is glyphosate genotoxic," "We do not know for sure"?
MS. GREENWALD: Objection to form.
A. I can't tell you. They could have easily taken it out of context or something along those lines. I have no idea. What I -- I can't answer "yes" or "no" to that question.
Q. OK, so sitting here today, you can't state that you didn't make this statement, and you can't say that you did, you just don't recall, correct?
MS. GREENWALD: Objection, form.
A. My current opinion on the genotoxic data for glyphosate is in the expert report. This does not match what's

in the expert report.
Q. I understand that.
Are you saying that you did not say this in the interview or are you saying you can't recall whether you said it?
MS. GREENWALD: Objection, asked and answered.
A. It was answered. I'm sorry, yes. She is right.
Q. Do you recall whether you said to these reporters, we don't know for sure whether glyphosate is genotoxic?
MS. GREENWALD: Objection, asked and answered now several times.
A. I do not recall.
Q. Do you recall whether you said, in the interest of public health, we should therefore classify glyphosate as genotoxic, in my opinion?
MS. GREENWALD: Objection, form.
A. I cannot possibly answer the question. No.
Q. You don't recall?
A. Don't know.
Q. You don't recall one way or the

other?
A. No. It was a long interview. It was over an hour.
Q. The -- you do -- you agree that just because a chemical can damage DNA, that does not mean it will cause mutations, correct?
MS. GREENWALD: Objection, form.
A. Say it again, please.
Q. Just because a chemical can damage DNA, that does not mean it will cause mutations, you agree with that statement, correct?
MS. GREENWALD: Same objection.
A. In general, that is correct. I would state it slightly different, but as a general, broad sweep, that's good enough.
Q. And just to be clear, if you can look at your expert report on page 53, I thought I quoted you, but maybe I did not.
Page 53 in your expert report on genotoxicity, the second full paragraph starting "Just because a chemical can damage DNA does not mean it will cause mutations," correct?

A. Yeah.
Q. That's your statement?
A. That's my statement.
Q. You agree with that, correct?
A. I would have liked to have written it slightly differently and more nuanced, but that's good enough.
Q. You agree that not all chemicals are mutagens, correct?
A. Who defines what the geno -- it's going to depend on a lot of different things. Who's making the call, who's doing the evaluations, et cetera.

But in looking at NTP studies with NTP evaluations, not all genotoxic substances cause tumors in male and female rats and mice.
Q. And just to be clear also, not all chemicals that are reported to be genotoxic are found to be mutagenic, correct?
A. Not all chemicals that are reportedly genotoxic are found to be mutagenic?

I can't answer that question.

It's too broad. I'm sorry.
Q. OK. I am correct that if a genotoxic chemical does not cause mutations, then it cannot cause cancer through a genotoxic mechanism, correct?
A. The assays -- this is all dependent upon what you look at.

The assays that are done for mutations are very limited assays looking at a very small number of genes and a very small number of mutations.

So to answer your question, I can answer it this way: There are some chemicals that are genotoxic that do not appear to be positive in the toxicological assays that have been done to evaluate them.
Q. I appreciate that. I was trying to ask a different question. I didn't word it correctly.

This is not in an individual study that tests one way or another. This is a broader, mechanistic question.

If a substance is genotoxic but it does not cause mutations, just as a

matter of fact, then it cannot cause cancer through a genotoxic mechanism, correct?
A. It can do it through a side -- to really think it through -- through side activities.

Genotoxic compounds are very reactive. They can damage other parts that could lead to oxidative stress or other things that will cause the mutations and the cancers.

So it's complicated.
Q. OK. And again, I didn't word this correctly, so I apologize, but for a chemical to cause cancer through a genotoxic mechanism, cause of action, it would have to progress to a mutagen -- a mutation -- I'm sorry -- correct?
A. The -- in a theoretical sense, if such a compound were not interacting with anything else, then in a theoretical sense, in a multi-stage model, you would expect a mutation to occur. If you could find it, that may not be possible. But you would expect a mutation to occur.
Q. And all of us sitting in this

room, we constantly have DNA damage to our cells in the ordinary course, correct?

MS. GREENWALD: Objection, form.
A. All living organisms have repair capacity and -- because they always have problems with their DNA during replication.
Q. And in the ordinary course, we are having DNA damage in our cells probably millions of times each day, correct?

MS. GREENWALD: Objection, form.
A. I couldn't give you an exact number.

Certainly not millions of times each day in each cell, because the DNA damage only really has any value during the time the cell replicates, and many of the cells in humans simply don't replicate that often.
Q. Every time there is a replication though, in the ordinary course, it is not uncommon for there to be DNA damage, correct?
A. That is correct.
Q. As you said, the human body has repair mechanisms that respond to DNA

damage so that it doesn't cause further damage, correct?
MS. GREENWALD: Objection, form.
A. The body has DNA repair capacity through several processes for different types of DNA damage, yes.
Q. And you would also agree that not all chemicals that test positive for mutagenicity cause cancer in humans, correct?
A. Not all chemicals that have been tested for genotoxicity --
Q. For mutagenicity.
A. -- for mutagenicity, and the evaluation is done by reputable groups, like the NTP, then I wouldn't be surprised if some of those that were mutagenic were not also carcinogenic, but I couldn't give you one right now.
Q. Now, in your expert report, you opine that the evidence is sufficient to classify glyphosate as genotoxic, correct?
A. Yes.
Q. In your expert report, you do not opine that the evidence is sufficient to

classify glyphosate as a mutagen, correct?
MS. GREENWALD: Objection, form.
A. The -- there is -- the evidence is insufficient to classify the mutagen because of the reasons I gave earlier.
There aren't that many tests, and they are very specific to very genes -- very few genes, not the entire human genome.
Q. And you do agree though that both glyphosate and glyphosate formulations have consistently tested negative in the Ames mutagenistic test, correct?
A. They have consistently with the exception, I believe, of four studies -- but there were a lot of studies -- consistently tested negative for the reverse mutation assay of a specific gene in salmonella typhimurium. So yes, the Ames test.
Q. And as you note in your expert report, there is a wide diversity of different types of genotoxicity tests, correct?
A. There are a wide diversity of

tests looking at effects of chemical on the gene, yes.
Q. And you state in your report, "Genotoxicity is a complicated area from which to draw a conclusion due to the diversity of studies available," correct?
A. It is, yes.
Q. And that is the case certainly with glyphosate in your opinion, correct?
MS. GREENWALD: Objection to form.
A. If I said it in here, you would have to tell me where it is again.
Q. I'm just asking you, would you agree that for glyphosate, genotoxicity is a complicated area from which to draw a conclusion due to the diversity of studies available?
MS. GREENWALD: Objection to form.
A. In general, genotoxicity is complicated to make decisions because there are so many different possibilities of how people do it. They use different animals. They use different cell lines. They use

different links of time for the exposure, et cetera.
So that is a usual case. I think I said that here but I'm not certain so I can't own up to that for this compound.
Q. But whether or not you said it in your expert report, you agree that that applies to glyphosate, correct?
A. Yes, when compared to something like the animal cancer studies where you have pretty much standardized designs on everything.
Q. Let me ask you about your opinions with regard to oxidative stress.
A. OK.
Q. You agree that oxidative stress is not unique to cancer induction, correct?
MS. GREENWALD: Objection, form.
A. Not unique to cancer induction. I'm not sure what you mean.
MR. LASKER: Let's mark the Smith publication.
(Exhibit 15-39, article entitled, "Key Characteristics of Carcinogens as a Basis for Organizing Data on

Mechanisms of Carcinogenesis," marked for identification, as of this date.)
A. Yes.
Q. And that paper -- this is a paper you were coauthor on, correct?
A. Correct.
Q. And page 715, talking about characteristic five induces oxidative stress, correct?
A. Characteristic five induces oxidative stress, that is correct.
Q. And you and your coauthor state, about halfway through that first paragraph, "Oxidative stress is not unique to cancer induction," correct?
A. "And is associated with a number of chronic diseases and pathological conditions."
Yes. That is correct.
Q. And so -- and you agree with that, correct?
A. That is correct.
Q. And the fact that a substance causes oxidative stressor is bound to cause oxidative stress in human cells in vitro,

or mammals in vitro, does not establish that that substance can cause cancer, correct?
MS. GREENWALD: Objection, form.
A. For any of the key characteristics, seeing a key characteristic does not establish that that -- by itself does not establish that that compound can cause cancer.
Q. So that would apply to oxidative stress and to genotoxicity, correct?
A. That is correct.
Q. Can you cite to any scientific publication or analysis that looks at the percentage of substances that have been shown to cause oxidative stress to see what percentage of them have been shown to cause cancer?
MS. GREENWALD: Objection, form.
A. Yes. We looked at it in the paper that we just did on monograph 100, but I have no idea if it is published yet or not.
Q. In that same paper did you look at scientific data that sets forth

noncarcinogens and look to see whether they are reported to cause oxidative stress?
A. Noncarcinogens.
Q. Noncarcinogens.
A. This was known human carcinogens. The entire analysis was known human carcinogens.
And I'm not certain because it is a separate analysis from the one I was thinking of. I can't be certain it's only the known human carcinogens.
Q. Are you aware of the fact that there are medicines that are used to treat cancer that cause oxidative stress?
A. Yes, I am.
Q. And oxidative stress has also been recognized as potentially acting to block carcinogenicity by inducing a -- I say this apoptosis or cell death, correct?
MS. GREENWALD: Objection to form.
A. At high enough levels, oxidative stress in some cells will kill them through an apoptotic or necrotic mechanism, but different cells get different exposures so

it depends on the level of exposure as to whether they get to that point.
Q. Oxidative stress is happening in our body all the time, correct?
A. It's part of the energy system that drives our ability to move.
Q. So exercise causes oxidative stress, correct?
A. Of course.
Q. And having a cold would cause oxidative stress, correct?
A. That's correct.
Q. Oxidative stress is happening all the time in every cell in the human body just through normal cell operations, correct?
A. What you're measuring in these studies is increased oxidative stress. It's not yes, no. It's increased oxidative stress.
Q. Well, just to be clear, exercise causes an increase in oxidative stress, correct?
A. Very marginally.
Q. And being sick can cause an

increase in oxidative stress, correct?
A. Very marginal for a very short period of time.
Q. And sunlight can cause an increase in oxidative stress, correct?
A. That I'm not so certain of but it wouldn't surprise me.
Q. What other non-exposure type activities have caused an increase in oxidative stress?
A. I ---I don't quite recall. I'd have to consult a couple of good textbooks or articles.
Q. And the body has repair mechanisms that are constantly responding to cellular damage caused by oxidative stress, correct?
MS. GREENWALD: Objection, form.
A. Not correct. They are responding to cellular damage regardless of the source.
Q. OK. But they would -- in responding to cellular damage, they would respond to cellular damage caused by oxidative stress, correct?

MS. GREENWALD: Objection, form.
A. If that damage was aimed at DNA, that is correct.
Q. And you cite a number of studies in your expert report that you cite as support for your opinion that glyphosate can cause oxidative stress, correct?
A. I'm sorry.
Q. You cite to a number of studies in your expert report that you believe support your opinion that glyphosate can cause oxidative stress, correct?
A. That's correct.
Q. Have you conducted any analysis to determine whether the concentrations of glyphosate in those studies could ever occur in human cells from the use of a glyphosate-based herbicide?
MS. GREENWALD: Objection, form.
A. Me personally? No.
Some of the studies did that. But not me personally.
Q. And is it your opinion that you rely upon studies -- strike that.
Do you believe that some of the

studies that you cite to have compared the doses they use with the dose levels that would occur in human cells from the use of glyphosate-based herbicides?
MS. GREENWALD: Objection, form.
A. As I said, some of them I believe might have done that.
The -- these are in vitro studies we are talking about, right?
Q. These are the studies you relied upon.
A. But you're asking me questions about in vitro studies or are you asking me questions about in vivo studies?
Because it actually makes a difference. They are both -- they are both in there.
Q. In your expert report -- let me ask you this: Whether in vitro or in vivo, is it your recollection any of those studies conducted an analysis to determine whether the dose that they use is at a level that is possible for the human cell to have as a result of the use of a glyphosate-based herbicide?

MS. GREENWALD: Objection, form.
A. I already answered that. I said I thought some of them might have done that and talked about how large it was compared to humans.
But I can't be absolutely certain.
Q. In your assessment of genotoxicity, you state in your expert report that you give the heaviest weight to the in vivo studies in humans, correct?
So there's three studies you talk about, two by Paz-y-Mino and one by Bolognesi, correct?
MS. GREENWALD: Objection, form.
A. The evaluation has different language than that. Because in the context of just talking about the human studies, the Bolognesi is the strongest, I think is what I said, but I don't know if I said I give the most weight.
I am sorry, you would have to point it out in here.
Q. In your revised report on page 54, you state that seeing genotoxicity

Page 358

in humans is more important than seeing genotoxicity in other mammals, which is more important than seeing genotoxicity in non-mammalian systems, correct?
A. All else being equal, that is correct.
Q. As you said, the study in humans that you believed to be the strongest study is the Bolognesi study, correct?
A. Correct, but that does not make it the major weight of my determination.
Q. I understand.
A. OK.
Q. And let's take a look at the Bolognesi study.
MR. LASKER: We will mark that as...
(Exhibit 15-40, article entitled, "Biomonitoring of genotoxic risk in agricultural workers from five Colombian regions," marked for identification, as of this date.)
Q. And just for the record, this is the study you were talking about -- we were just talking about just previously,

Page 359

correct?
A. Yes, I believe it was.
Q. The investigators in Bolognesi at page 994, at the bottom of the second column, state that, overall, these data suggest that genotoxic damage associated with glyphosate spraying as evidenced by the NM test is small and appears to be transient, correct?
MS. GREENWALD: Objection, form. That wasn't read right.
A. Overall, these results suggest that genotoxic -- I am sorry.
"Overall, these results suggest that genotoxic damage associated with glyphosate spraying as evidenced by the micronucleus test is small and appears to be transient" is what it says.
Q. Do you agree with the Bolognesi investigators' assessment of their study and findings?
A. I have to look to see the context in which they're making the statement.
I'm not sure I agree with the "small."

Page 360

Q. The Bolognesi study on page 995, the first column, about half the way down that first paragraph, there is a sentence that starts "Evidence indicates that the genotoxic risk."
Do you see that?
A. Um-hm.
Q. The Bolognesi investigators conclude from their study that evidence indicates that the genotoxic risk potentially associated with exposure to glyphosate in the area where the herbicide is applied for eradication of cocoa and poppy is of low biological relevance.
Do you see that?
A. I see it.
Q. Do you agree with the Bolognesi investigators' assessment, this assessment of their study findings?
A. I don't know how they could possibly come to that conclusion. So I don't disagree or agree. I can't imagine where they got that from this data.
Q. The Bolognesi investigators found that there was no association between

Page 361

self-reported exposure to glyphosate and in-transit genotoxic impacts, correct?
A. Not correct.
Q. Let's look at page 994.
A. They -- they ask specific questions about where you were when the spraying occurred. And so that's not self-chosen exposure. That's self-chosen where were you.
Q. Well, let's look actually at page 994 again. The second column on the right, the second paragraph from the bottom, the sentence starts, "There was no significant association between self-reported direct contact with eradication sprays" --
A. Which page are we on?
Q. I'm sorry. Page 994.
A. Right hand --
Q. Second column, second paragraph from the bottom, it starts, "There was"?
A. Yes, now I see it. Sorry. I was second from the top.
Q. The Bolognesi investigators report that there was no significant association between self-reported direct

contact with eradication sprays and frequency of BNMN, correct?

A. That's what they write, but self-reported is an incorrect description of what that was.

Q. There was a -- on the preceding page, 993, there is a table that -- table 4 presents their analysis for self-reported exposure to the glyphosate sprays.

Do you see that?

A. That's what it says in the title, but what it is is a report of where you sort of -- whether you had it in the air, on your skin, or you entered the spraying field.

That's not asking someone did you think you were exposed to this, which would be a self-reported exposure. So not exactly that.

Q. In your understanding, Bolognesi -- the Bolognesi study did not conduct an analysis that asked individuals if they were exposed to the glyphosate spray?

A. It's not here. That's clear to

me.

And my understanding of this study is these are the three things they used, but had they asked the question, do you think you were exposed? People who ate things from the field might have answered yes.

So it's hard from this to jump to self-exposure arguments. But they -- they do point out that it does not seem to be correlated with these things.

Q. And with respect to the analysis of where they were located -- where the individuals in this study were located, the Bolognesi investigators looked at impacts five days later after the alleged spraying -- glyphosate spraying, and then again four months later, correct?

A. That is correct. In certain cities, not in all of them.

Q. And the findings with respect to genotoxic impacts do not continue or are not present four months after the exposure, correct?

MS. GREENWALD: Objection, form.

A. That would not be correct.

Q. In the Narino Province, where there was the highest spraying of glyphosate, the findings four months after the spraying was unchanged from before the spraying, correct?

A. In the Narino Province, that is correct.

Q. If a genotoxic effect does not persist or is not present four months after exposure, it's fair to say that cannot be a cause of cancer, correct?

MS. GREENWALD: Objection, form.

A. Not correct.

Q. So is it your testimony that if there is a genotoxic impact that does not result in genotoxic damage four months after exposure, they can still lead to that can cause cancer?

MS. GREENWALD: Objection, form.

MR. LASKER: I agree with that. Actually, I'm going to state that again.

Q. If a chemical exposure does not cause a genotoxic effect that persists for

four months, can that effect be a cause of cancer?

A. Yes.

And there is a chemical that's a classic example of that in humans, but I don't know it off the top of my tongue.

It's banned. It was a drug.

MR. LASKER: I am maybe done. I may have a chance to have him answer that one question and a few more things, but let's take a break and talk to this guy.

THE VIDEOGRAPHER: The time is 5:29 p.m. We are off the record.

(Recess.)

THE VIDEOGRAPHER: The time is 5:33 p.m. We are on the record.

MR. LASKER: I am going to mark as 15-41 the notice of deposition for Dr. Portier's deposition in this case.

(Exhibit 15-41, notice of deposition, marked for identification, as of this date.)

BY MR. LASKER:

Q. And, Dr. Portier, there is

attached to this notice a list of document requests, request for production of documents, and you have produced some documents here today.

MR. LASKER: I'm going to mark that. That's what this is, 15-42, as the documents that we received from your counsel, Robin Greenwald, in response to the notice of deposition.

(Exhibit 15-42, letter dated August 29, 2017, with attachment, marked for identification, as of this date.)

MS. GREENWALD: You didn't give me a copy of that, did you?

No, I don't want them. That would kill too many trees. No, no, no.

Q. First question, and you can take a moment to leaf through them if you need to, but am I correct in my understanding what we marked as Exhibit 15-42 are the documents that you have that you believe were responsive to the document requests which have been marked as 15-41?

A. If these are documents, they

are -- that were passed on to you, then they are responsive.

Q. And am I correct in my understanding that, at least as far as you believe, you do not have any other documents that are responsive to our document requests?

MS. GREENWALD: Objection, form.

A. As -- I don't know what's in here, what they gave you. So I can't answer that question.

Q. We have not received any electronic data reflecting any of your work product in preparing your various analyses of glyphosate.

I take it you do have that data somewhere, correct?

MS. GREENWALD: Objection, form.

A. By -- I'm not sure what you mean --

Q. You have files on your computer --

A. The data that I used is in this expert report and the data was in spreadsheets.

Q. Do you have those spreadsheets in your computer?

A. Yes, I do.

Q. And do you have the calculations that you conducted on the data in your computer?

A. Probably some of them. The programs I use spit out an answer, I'd write it down, but they weren't always kept.

Q. So you have some data and some you have and others you don't have and you don't know sitting here today?

MS. GREENWALD: Objection, form.

A. I have all of the data. I can't guarantee I have all the results of the runs on the computer.

Q. OK.

And which programs did you use in conducting your analysis?

A. MATLAB.

Q. That was for all of your analyses?

A. No. I used a program by the German Cancer Research Center on animal

bioassays, the exact test, to check it against the MATLAB program for the exact test. I wanted to make sure they were both working right.

And did I use any other programs?

I -- I might have programmed one or two things in the spreadsheet itself.

Q. Is that a residence that you maintain in the United States?

A. Yes, it is.

Q. Dr. Portier, you had wanted to make a comment about the 1995 Charles River report.

A. That's correct.

Q. Just for the record, what is the exhibit number? Because I don't remember it.

A. 15-34.

So I have some concerns with this

one being the correct historical controls. First, I don't know what a CRL CD-1 13R mouse is and I can't find it. So I'd have to find out if that strain is relevant.

The 13R could indicate some sort of genetic transformation or something, I just don't know what it is.

The other problem in looking at these, I realize these are fairly small numbers of studies groups, and when you go back to the beginning, it turns out this is a companion paper to go with a different paper that provides the historical control database.

So I wouldn't use just this, I'd need the companion paper that goes with it.

MR. LASKER: I pass the witness and reserve the remaining time.

MS. GREENWALD: We are going to go to your room. And just we need one minute.

THE VIDEOGRAPHER: Off the record at 5:38 p.m. We are off the record.

(Recess.)

THE VIDEOGRAPHER: The time is

5:53 p.m. We are on the record.

EXAMINATION BY
MS. GREENWALD:

Q. Good afternoon, Dr. Portier. It is now my turn to ask you a couple of questions and we will call it a day.

I want to ask you one question -- just a couple of questions, the first one being: IARC does not use expert summary articles, is that correct?

A. That is correct.

Q. Can you tell us why?

A. Yes. Expert summary reports sometimes cannot cover the topic completely. It is always much better to go to the source material and work with the source material or the source report.

A good example of that is the Greim study. If all we had used was to read the Greim study to talk about the carcinogenicity of the 12 studies that were included in the appendix of the Greim report, we would have missed a lot of tumors because Greim only had roughly half or even maybe less than half of the total

tumors seen in these studies listed in his report.

And what I mean by seen in these studies is they had a positive Armitage linear trend testing proportions, which is the standard for how people analyze these data.

Q. OK. Thank you.

In biomedical research, is it generally accepted to perform sensitivity analyses?

A. Oh, definitely. It's a -- it's a common tool. The tool is used to judge how sensitive your finding is to slight modifications.

We saw a good example of that with the meta analysis -- meta analyses that were done for this where certain studies were added in, certain studies were taken out, and you look at the overall effect on that and then it gives you a better chance for making the correct judgment about whether you believe the finding you're looking at is positive or negative.

Sometimes it can make you more confused but sometimes it can clarify things for you.

In addition, any time you have got something that you feel not only doesn't -- not that it drives the result, but that maybe shouldn't be included in the evaluation, then you would do a sensitivity analysis to exclude and -- you do both to look and see how important that concept is, and then if you find it's very important, you have to decide which way was the most important way to go.

So that's a normal technique in biomedical research.

MS. GREENWALD: Can I have an exhibit, I think we are on.

(Exhibit 15-43, screen shot from LobbyFacts.eu, marked for identification, as of this date.)

Q. I'm going to show you, Dr. Portier, what I am marking as Exhibit 15-43.

This is a two-page document that we took off the internet today called

"LobbyFacts.eu."

And if you recall earlier today, Mr. Lasker asked you questions about C. Portier Consultation being a registered lobbyist in the European Union.

Do you remember those questions?

A. Yes, I do.

Q. And I believe you testified -- and I'm going to ask you to explain it again -- why you ever -- why you ever registered in the first place with the EU?

A. Because the staffer for the commissioner of health at first thought in order for us to talk to the commissioner of health, we had to register as lobbyists, but then after I think two days -- it wasn't very long, a couple of days -- came back and said, no, I got that wrong, you're not representing anybody, you're representing your academic background and standards, and as such, it would be inappropriate for you to do this. So you don't have to do it.

Q. And what does 15-43 show?

A. Under the little red triangle in

the top half of the page, it says, organization not currently on the register -- registration as it was on 21 December 2015.

Q. And what do you understand that to mean?

A. They have taken the registration off the register, which they told me they would do.

Q. That was as of the 21st of December 2015, right?

A. That's what it looks like, yes.

Q. Now, Mr. Lasker also asked you questions earlier about your consultation with the Environmental Defense Fund, correct?

A. That's correct.

Q. In fact, that was quite a bit of the questions this morning, wasn't it?

A. The --

Q. Early in the morning.

A. A lot of them, yes.

MS. GREENWALD: I'm going to mark 15-44.

(Exhibit 15-44, screen shot from

the EDF website, marked for identification, as of this date.)

Q. And this is a from a blog that was taken off of -- actually, Reuters. Oh, yeah, I'm so sorry, my eyesight is so bad, forgive me. It says, "Off the EDF website." It is a three-page printout from the EDF website, and it is titled, "Growing returns, a coalition of uncommon bedfellows is bringing sustainable agriculture to scale."

Do you see that?

A. Yes, I do.

Q. What is this article about?

A. I'll have to take a look at it real quick here. Sorry.

Q. Is this a description -- let me ask a different question: Is this a description of work that Monsanto is currently doing with the Environmental Defense Fund?

A. Yes, it appears to be. It says, "Founding members of the MRCC include cargo, environmental potential, and General Mills, Kellogg Company, Monsanto, PepsiCo,

and others.

Q. And it actually talks about partnership between Monsanto and the Environmental Defense Fund, correct, on page 2?

A. Yes.

Q. And the date of this article is August 31, 2016, is that correct?

A. Yes, it is.

Q. And I'm going to show you one more document.

MS. GREENWALD: I'm marking it 15-45.

(Exhibit 15-45, document entitled, "Monsanto joins Environmental Defense Fund, others, in Sustainable Agriculture Coalition," marked for identification, as of this date.)

Q. It is a one page document, and it is taken from the Genetic Literacy Project. And it is entitled, "Monsanto joins Environmental Defense Fund, others, in sustainable agriculture coalition."

Do you see that?

A. Yes, I do.

Q. Dated September 1, 2016?
A. Yes, I do -- yes, it does.
Q. What is this?
A. It looks like a news article about the same Midwest Row Crop Collaborative that the other one was on but this is a news item on it.
Q. It is also, again, talking about Monsanto --
A. Whatever Genetic Literacy Project does.
Q. Again, it's talking about Monsanto's work with the Environmental Defense Fund, is that correct?
A. Yes, it is.
MS. GREENWALD: OK, thank you.
Q. Dr. Portier, can you pull out 15-32?
MR. LASKER: That's the original expert report with attachments?
MS. GREENWALD: Yes.
Q. If you can look at the appendices, the first appendices, it is entitled "Document 1." It is sort of towards the back?

A. Yes, I see it.
Q. It says, "Difference in the carcinogenic evaluation is glyphosate between the international agency for research on cancer (IARC) and the European Food Safety Authority (EFSA.)" Do you see that?
A. Yes, I do.
Q. What is the date of this article?
A. August 2016, Volume 7, No. 8 in the Journal of Epidemiology and Community Health.
Q. If you go to page 744 of that article, please.
And if you look at -- there is a loke a lock with an open key, and it says, "Open access."
Do you see that?
A. Yes, I do.
Q. If you go right above that, it says, "Competing interest."
Do you see that box?
A. Yes, I do.
Q. Isn't it the case in this article, you and others provided

information that you were providing advice to a U.S. law firm involved in glyphosate litigation?
"CJP also works part time for the Environmental Defense Fund on issues not related to pesticides."
Do you see that?
A. Yes, that is correct.
Q. Who is "CJP"?
A. That is me, Christopher Jude Portier.
And it refers to the initials used in the author's list at the beginning of the document, wherever that is.
But if you look at the authors list in the beginning of the document, I'm listed as Christopher J. Portier and I'm the only CJP.
MS. GREENWALD: Thank you, Dr. Portier. I don't have any other questions. I appreciate your patience today.
MR. LASKER: I have a couple of follow-ups, but just a couple.
- - - -

EXAMINATION BY
MR. LASKER:
Q. The Greim publication included supplemental tables with the data for all of the tumors that were analyzed in each of the animal studies -- or glyphosate cancer bioassays, correct?
A. No, not correct. It contained summarized data.
Q. The supplemental materials provided the data on tumor types and tumor counts that you have used in your analyses in this case, correct?
A. For most of the analyses, that is correct.
Q. And every finding that you report as showing significance can be obtained from the supplemental data tables that were provided with the Greim publication, correct?
MS. GREENWALD: Objection, form.
A. The question I was asked by counsel had to do with the use of expert summary -- expert summaries, and so while the data is there, the expert summary is

Page 382

the written words of Greim.

Q. That's not my question.

The data tables that were provided with the Greim publication in the supplemental materials that were publicly available contains all the data that you would need to generate every one of the calculations in your report --

MS. GREENWALD: Objection, form.

Q. -- except for historical controls?

MS. GREENWALD: Objection, form.

A. Given six months -- and I'm going to have to take some minor reservations, because I can't be absolutely certain, but given six months and that data, I could have done what I wanted -- what I did here.

Q. And that data became publicly available because an author, a scientist at Monsanto, who is a coauthor on the Greim publication, and the other coauthors published the Greim publication and made those data tables available on the internet, correct?

MS. GREENWALD: Objection, form.

Page 383

A. 30 days before the IARC meeting, that is correct.

MR. LASKER: I have no further questions.

THE VIDEOGRAPHER: This concludes today's deposition. The time is 6:06 p.m. We are off the record.

____

CHRISTOPHER JUDE PORTIER, Ph.D.

Subscribed and sworn to
before me this day
of MO , 2017.

____

Page 384

CERTIFICATE

STATE OF NEW JERSEY)
)ss:
COUNTY OF UNION)

I, MARY F. BOWMAN, a Registered Professional Reporter, Certified Realtime Reporter, and Notary Public within and for the State of New Jersey, do hereby certify:

That CHRISTOPHER JUDE PORTIER, Ph.D., the witness whose deposition is hereinbefore set forth, was duly sworn by me and that such deposition is a true record of the testimony given by such witness.

I further certify that I am not related to any of the parties to this action by blood or marriage and that I am in no way interested in the outcome of this matter.

In witness whereof, I have hereunto set my hand this 6th day of September, 2017.

____

MARY F. BOWMAN, RPR, CRR

Page 385

NAME OF CASE:
DATE OF DEPOSITION:
NAME OF WITNESS:
Reason Codes:

1. To clarify the record.
2. To conform to the facts.
3. To correct transcription errors.

Page ______ Line ______ Reason ______
From ______________________ to ______________________
Page ______ Line ______ Reason ______
From ______________________ to ______________________
Page ______ Line ______ Reason ______
From ______________________ to ______________________
Page ______ Line ______ Reason ______
From ______________________ to ______________________
Page ______ Line ______ Reason ______
From ______________________ to ______________________
Page ______ Line ______ Reason ______
From ______________________ to ______________________
Page ______ Line ______ Reason ______
From ______________________ to ______________________
Page ______ Line ______ Reason ______
From ______________________ to ______________________

____

U